

CANADIAN GEOGRAPHICAL JOURNAL

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JANUARY
1938

VOL. XVI
NO. 1



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*Lioness in the Kruger National Park
Durban Beach
Through the Pines
Native Child*

SOUTH AFRICA

The Golden Land-

JUST now, above South Africa, the glorious sun is bathing all this lovely land. Its spell is over white-homed cities, floral wonderlands, or where the long surf pounds upon the golden sands, then, at the close of day, it gilds with flame the fortress peaks that crest the mighty Drakensberg. Sunshine abundant, yet high noon is temperate, and the star-filled nights induce cool, restful slumber!

To charm the eye and spirit are such famous scenes as vast Victoria Falls, the multicoloured Congo Limestone Caves, mysterious Zimbabwe, token of man's dim antiquity, the native kraals, and in the Kruger National Park an animal kingdom flanks the winding road. Here are quaint villages and prosperous towns rich in the present day's amenities. Here sight-seeing may be mingled with a choice of various sports. And all throughout South Africa your way is smoothed by modern travel brought to high perfection, and graced by hospitality.

Your travel agency will gladly tell you more about South Africa, and will perhaps surprise you when you learn how easily a never-to-be-forgotten holiday in this hospitable Dominion may be yours.

THRILLS OF THE PRIMITIVE IN CIVILIZED COMFORT

CANADIAN GEOGRAPHICAL JOURNAL

Editor

Gordon M. Dallyn

172 WELLINGTON STREET, OTTAWA

This magazine is dedicated to the interpretation, in authentic and popular form, with extensive illustration, of geography in its widest sense, first of Canada, then of the rest of the British Commonwealth, and other parts of the world in which Canada has special interest.

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The British standard of spelling is adopted substantially as used by the Dominion Government and taught in most Canadian schools, the precise authority being the Oxford Dictionary as edited in 1929.

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FROM SEA TO SEA

by

LAWRENCE J. BURPEE

ADOPTING the stately words of one of the Psalms, Canada took as her motto *A mari usque ad mare*. It is her proud boast that she holds dominion from sea to sea. So, however, does her great neighbour the United States. Fortunately the relations between the Dominion and the Republic are so unusually friendly that, over a quarter of a century ago, they decided to set an example to the rest of the world in the peaceful settlement of international disputes by creating a permanent tribunal and giving it jurisdiction over problems that might arise along the common frontier. That tribunal, known as the International Joint Commission, is still in existence, and its functions as a traffic officer over the longest boundary dividing — or, as President Roosevelt has happily put it, joining — two nations have been so successfully carried out that it is unlikely it will ever be abolished.

The International Boundary runs from Passamaquoddy Bay on the Atlantic side of the continent to the Strait of Georgia on the Pacific. It follows the St. Croix River to the Chiputneticook Lakes, then strikes north until it meets the St. John River, which it ascends for about a hundred miles. This part of the boundary divides the Province of New Brunswick from the State of Maine. From the upper St. John the boundary meanders along the height of land dividing Maine and New Hampshire from Quebec, until it strikes the 45th parallel of latitude, which it

follows to the upper St. Lawrence, cutting across Lake Memphremagog and the upper part of Lake Champlain on its way. It hits the St. Lawrence almost opposite the town of Cornwall. Along this section of the boundary Quebec's neighbours are Vermont and New York.

Ascending the St. Lawrence, through the Thousand Islands, the boundary enters Lake Ontario, follows the Niagara River into Lake Erie, and by way of the Detroit River, Lake St. Clair, and the St. Clair River, reaches Lake Huron. It runs up the St. Mary's River to Whitefish Bay, and then through Lake Superior to the mouth of Pigeon River. From there it follows the old canoe route of the fur traders to Rainy Lake, and down Rainy River to the Lake of the Woods. Crossing that lake it enters what is known as the North West Angle Inlet, the subject of a long controversy between Canada and the United States. From the head of the inlet it drops due south to the 49th parallel, and as this is met in a bay of the Lake of the Woods part of the State of Minnesota is cut off from the rest of the country. Throughout all this section of the boundary Ontario lies to the north and is faced by the States of New York, Pennsylvania, Ohio, Michigan, Wisconsin and Minnesota.

From the Lake of the Woods the boundary follows the 49th parallel across the prairies to the Rocky Mountains, and from the mountains to the Strait of

LEFT:—Trail along International Boundary, between Waterton and Glacier Parks. Cutting can be seen running up mountain side in distance. Inset—typical boundary monument.

This map illustrates the Pacific Northwest region, focusing on the Columbia River and its extensive network of tributaries. The river originates in the north, flowing south through British Columbia and Washington, where it is joined by the Skagit River, Snohomish River, and Nooksack River. It then continues south through Oregon and Idaho, receiving water from the Snake River, Salmon River, and Lemhi River. The river eventually empties into the Pacific Ocean. Key locations are marked with numbered points (1-13) along the river and its tributaries. Major cities and towns shown include Vancouver, Seattle, Portland, and Boise. The map also depicts the surrounding mountain ranges, including the Coast Range, Cascade Range, and Sierra Nevada. The Columbia River is shown as a major waterway, with numerous smaller tributaries feeding into it. The map is oriented with North at the top, and the Pacific Ocean is visible to the west.

Map of the Pacific Northwest showing the Columbia River and its tributaries. Key locations marked include:

- 1. Skagit River
- 2. Snohomish River
- 3. Nooksack River
- 4. Skagit River
- 5. Snohomish River
- 6. Nooksack River
- 7. Skagit River
- 8. Snohomish River
- 9. Nooksack River
- 10. Skagit River
- 11. Snohomish River
- 12. Nooksack River
- 13. Skagit River

The above chart illustrates in a general way the geographical distribution of the problems with which the International Joint Commission is called upon to deal.

Georgia, the Provinces of Manitoba, Saskatchewan, Alberta and British Columbia lying opposite the States of North Dakota, Montana, Idaho and Washington. It took many years to decide where the boundary should go west of the Rockies, the United States claiming the entire coast region up to the foot of the Alaska Panhandle, and Canada the territory north of the Columbia River. As so often happens, the final settlement was in the nature of a compromise. From the point where it leaves the Atlantic to the point where it reaches the Pacific, the boundary between Canada and the United States is 3,260 miles long, considerably more than the sailing distance between Montreal and Liverpool.

It may be interesting to note that, as the boundary cuts off an isolated bit of Minnesota, on the west side of the Lake of the Woods, it also cuts across the extreme end of Point Roberts, in the Gulf of Georgia, leaving a few square miles as United States territory, and an embarrassing problem to the United States customs authorities.

This boundary and the territory adjacent to it on either side, and the waterways through which it passes, are the principal, though not the only, scenes of the jurisdiction of the International Joint Commission.

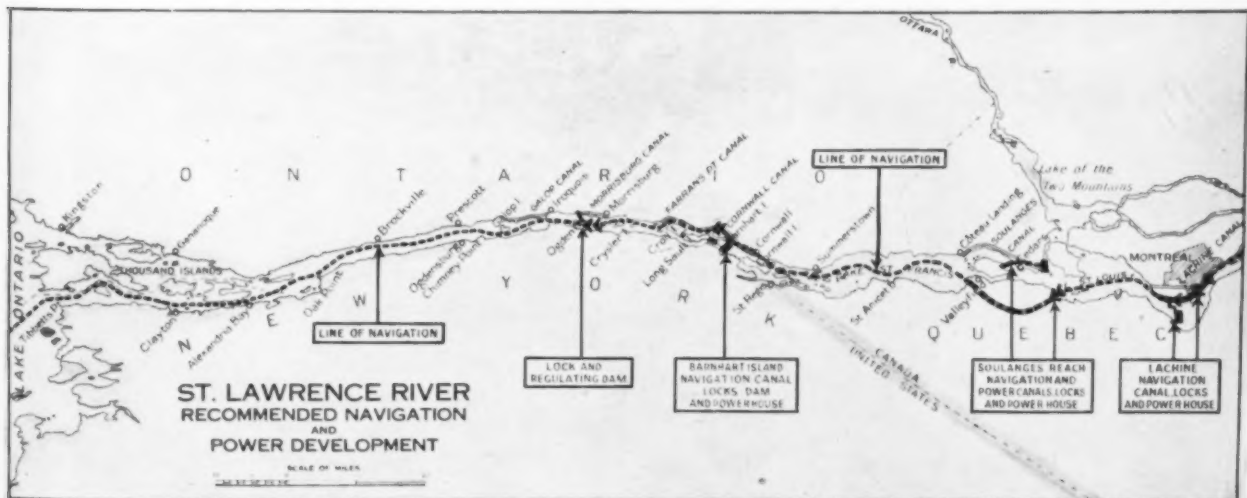
The Commission owes its existence, and gets its authority, from a Treaty signed at Washington in 1909. Under the terms of this convention it has a three-fold jurisdiction. In the first place, its authority is final in all cases involving

the use or diversion of boundary waters or of rivers crossing the boundary. In the second place, it investigates and reports upon questions referred to it by the Government either of Canada or the United States; the Governments may or may not carry out its recommendations. And in the third place, it may finally settle any question that the two Governments agree to refer to it for that purpose.

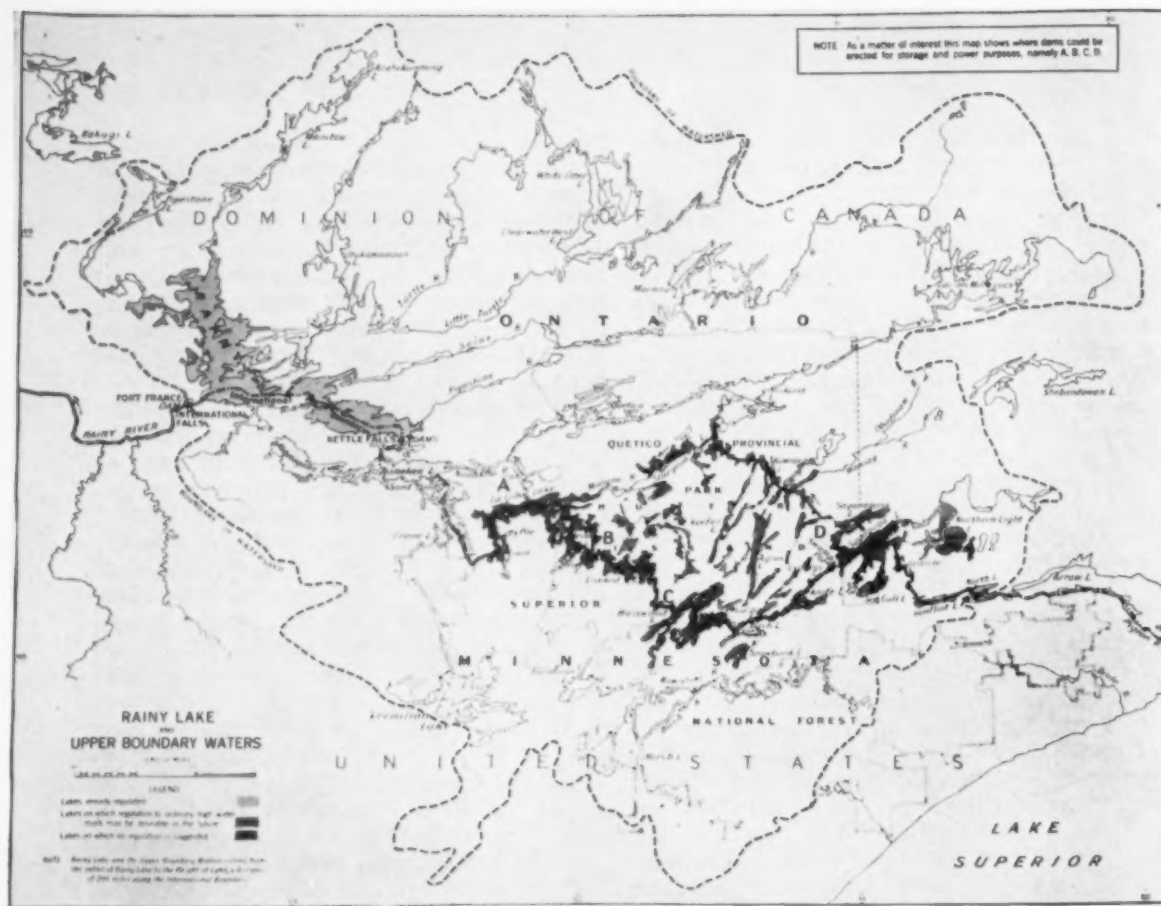
The second class of cases must relate to conditions along the common frontier. The third is not restricted in any way, so far as the locality of the problem is concerned. It might be in Florida or Alaska, the Mackenzie District or Cape Breton, provided that interests of both countries were involved. The Commission also has jurisdiction over a special problem connected with the use of the St. Mary and Milk Rivers, in Southern Alberta and Northern Montana, for irrigation purposes.

It may be said at once that no case has yet been before the Commission in the third class, probably because there has never yet been occasion to make use of this very far-reaching clause of the Treaty. On the other hand the Commission has carried out a number of investigations in the second class, some of them involving very large interests in one or both countries.

One of the earliest of these investigations had to do with the pollution by sewage or factory wastes of boundary waters. This enquiry took several years to complete, and involved the most extensive bacteriological surveys that had ever been attempted. It was found that while the



The scheme of deep draft navigation and power development recommended by the International Joint Commission on the St. Lawrence.



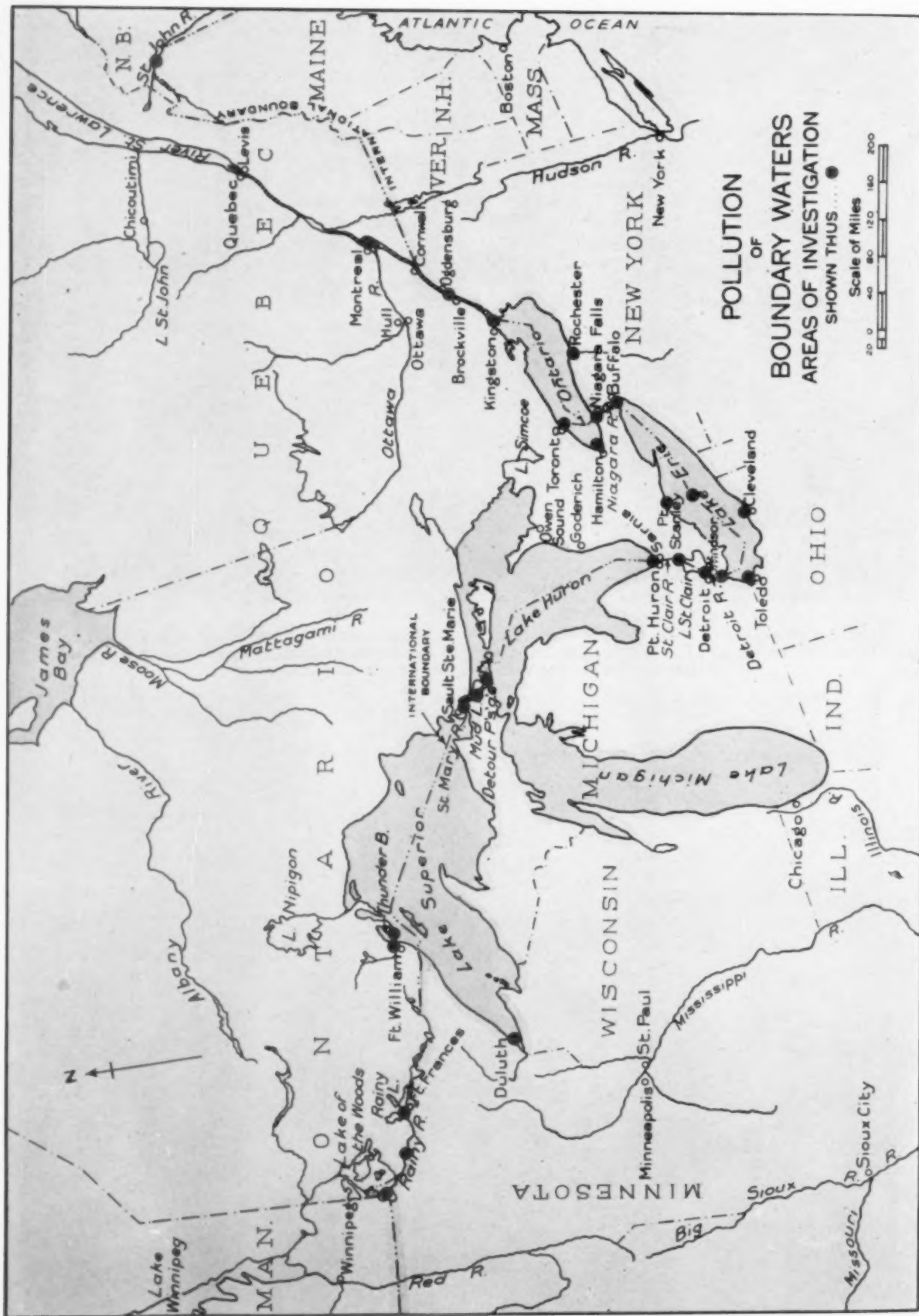
The map above illustrates the scene of one of the Commission's investigations—the regulation of Rainy Lake and other boundary waters. Diversions for power from Niagara Falls is covered by Article 5 of the Treaty.





Dam and power-houses at the outlet of Rainy Lake, west of Lake Superior. The towns of International Falls, Minn., on the left, and Fort Frances, Ont., on the right. Below—International bridge across Niagara River, between Buffalo and Fort Erie, approved by International Commission.





Map illustrating a problem vital to millions of Canadian and American citizens, which is again becoming so serious that it may once more engage the attention of the International Joint Commission.

Great Lakes were contaminated, the most serious conditions existed in the connecting rivers, particularly the Detroit and Niagara Rivers, the principal offenders being the great cities of Detroit and Buffalo. This, however, did not imply that Canada was in any position to look reproachfully at the United States, as practically all communities, large and small, American or Canadian, on boundary waters followed the evil practice of dumping their raw sewage into lakes and streams that were used as a source of water supply, although this was forbidden by the terms of the Treaty.

The Commission submitted an elaborate report to the two Governments, with recommendations designed to remedy a condition that endangered not only property on both sides of the boundary but also the lives of millions of Canadians and Americans. It was requested to embody its recommendations in a draft treaty. This was prepared and submitted to the Governments some years ago, but no action has yet been taken to bring it into

effect. However, the Commission's painstaking investigation was not wasted. As a result of the conditions it condemned modern sewage disposal and water purification plants have since been installed in many communities around the Great Lakes as well as farther inland.

Another enquiry carried out by the Commission at the request of the Canadian and American Governments related to the water levels of the Lake of the Woods. This lake discharges into Winnipeg River, which itself empties into Lake Winnipeg. There are large water-power developments on Winnipeg River. On the other hand there are several small towns and a number of farms on the American side of the Lake of the Woods. The problem was to recommend a level that would benefit the plants on Winnipeg River upon which the city of Winnipeg depended for power, without doing injustice to the American settlers and other interests around the Lake of the Woods, who would be injured by flooding if the level of the lake was raised. The Commission in its report recommended a certain increase in the water level, for the benefit of the power interests, and at the same time assessed those interests a considerable sum to be paid as com-



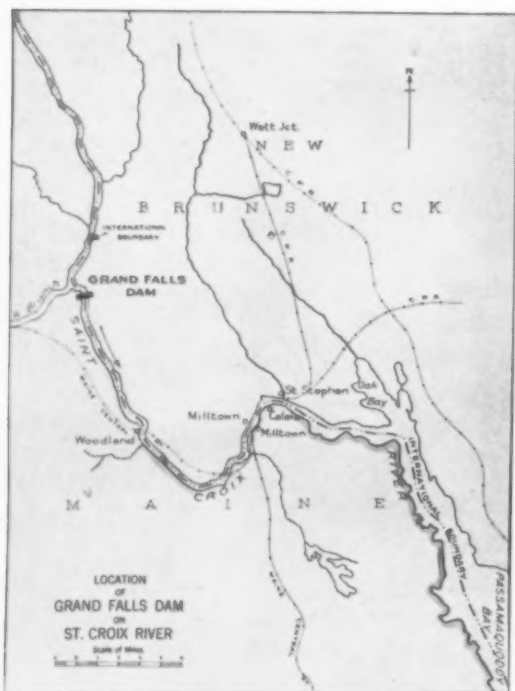
Peace Bridge, crossing the International Boundary, from Buffalo to Fort Erie, was approved by the International Commission in 1925.



The Lake of the Woods, west of Lake Superior, is a boundary lake whose water levels were investigated by the Commission.

pensation to the farmers on the south shore. As a result, every one was reasonably satisfied.

Some years later the Commission investigated the practicability of improving the upper St. Lawrence for both navigation and water power. This enquiry involved a number of public hearings in Canadian and American cities, from Montreal to Calgary and from Boise, Idaho, back to Boston and New York, for the purpose of gathering testimony as to the economic practicability and advantage of deepening the St. Lawrence so as to provide a channel for ocean-going ships from the Atlantic to Fort William, Duluth and Chicago. The Commission, which also had the advantage of expert advice both as to the navigation and the water-power sides of the problem, finally reported in favour of the project, but, because of its magnitude, recommended that its conclusions should be reviewed by an independent board of engineers, as well as by Canadian and American economic committees. These bodies also reported favourably, and as a result a treaty was prepared and signed to authorize this very big undertaking. The treaty, however, failed to win the approval of the United States Senate.



St. Croix River is a boundary stream, between Maine and New Brunswick.

In the far west the Commission was called upon to deal with an entirely different question. Farmers in the northern part of the State of Washington had complained that their farms and orchards were being ruined by fumes drifting across the boundary from the great smelter at Trail, British Columbia. The Commission held public hearings in the west, and got the opinion of eminent experts, Canadian and American. In its report to the Governments it recommended that \$350,000 should be paid by the Consolidated Mining and Smelting Company as compensation to the farmers. This was for damages up to the end of 1931. The Company was also required to take steps to reduce the sulphur fumes to a point that would no longer be injurious. The Company had, as a matter of fact, already started work on a special plant to collect the sulphur from the fumes and use it as the base of a chemical fertilizer. This plant was completed, and, lacking a market in the Canadian West owing to the depression, chemical fertilizer has been shipped in considerable quantities across the Pacific for use on Asiatic farms. The American farmers complaining that they were still being injured, the matter of damages since the beginning of 1932 has lately been investigated by a special Arbitration Board, consisting of a Canadian and an American commissioner with an eminent Belgian as chairman.

Of the numerous cases falling within the first class mentioned above, that is, cases involving the use of boundary waters or rivers crossing the boundary, in which the Commission's decision is final, it may be sufficient to mention one. A number of years ago the Commission's approval was asked for the building of a dam at the outlet of Lake Superior, near the twin cities of Sault Ste. Marie, Michigan, and Sault Ste. Marie, Ontario. When hearings were held in those cities, representatives appeared from Fort William, Port Arthur, Duluth and Superior, at the western end of Lake Superior, who expressed alarm lest the operation of the dam might have an injurious effect upon their water and sewage systems by unduly raising the level of the lake. They finally waived their objections on condition that the Commission should retain jurisdiction over both the building and operation of the international dam. As this happened early in the history of the Commission, it was a remarkable tribute to the confidence



Canadian canal and power house at Sault Ste. Marie, outlet of Lake Superior. Dam authorized by the International Commission crosses the St. Mary River on left side of the canal.

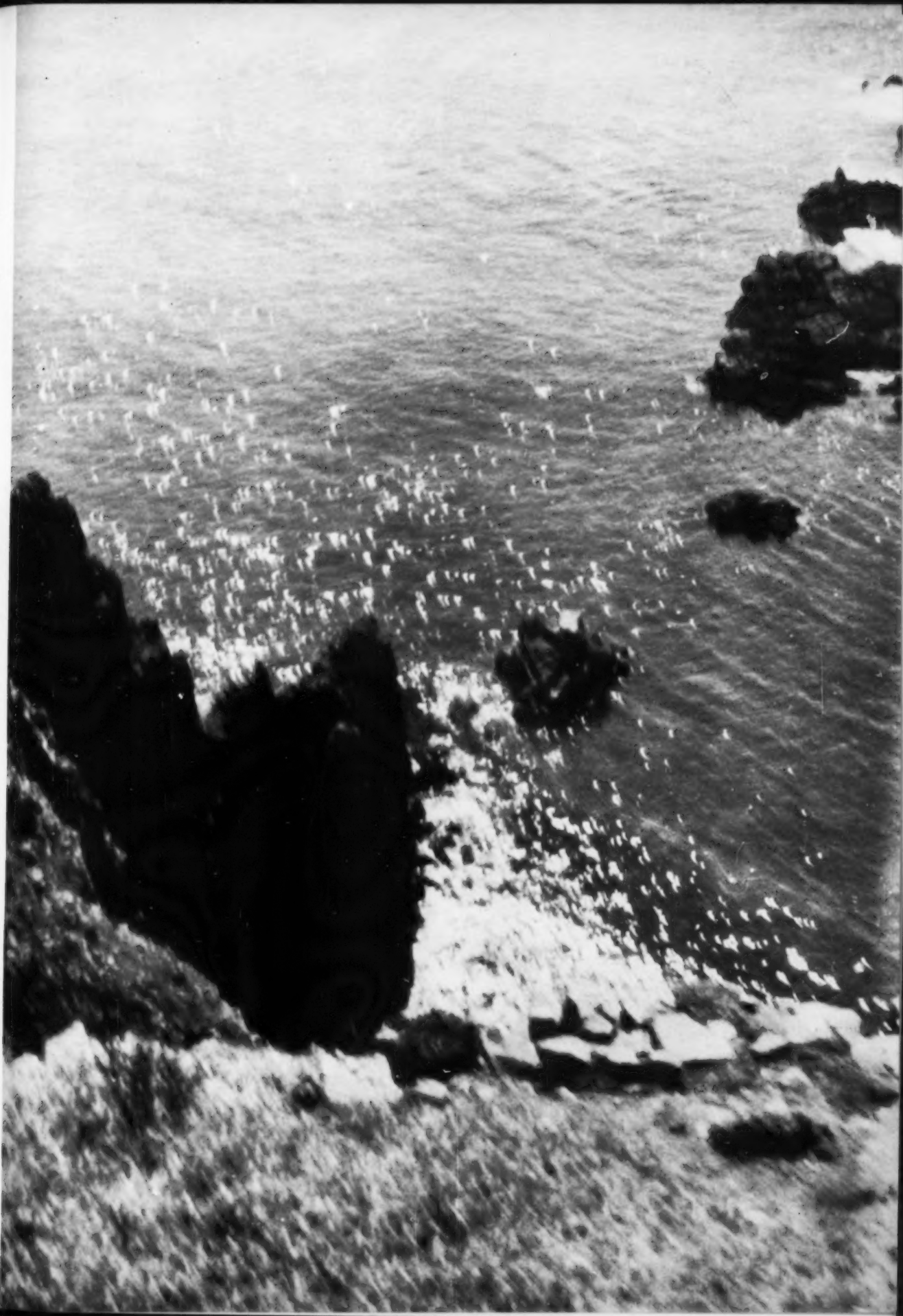
Outlet of Lake of the Woods, where the levels of the lake are regulated by an International Board under authority of the International Commission.





ABOVE:—Although the power dam at Grand Falls is in New Brunswick, the Government of that Province had to obtain the permission of the International Joint Commission, because the St. John River above the dam is boundary water and the water levels there would be affected by the dam.

RIGHT:—Storm-beaten ramparts of Grand Manan, where the International Boundary runs out into the Bay of Fundy.





International Joint Commission in 1936. Seated—George W. Kyte (Canada), Eugene Lorton (U.S.), C. A. Magrath (Canadian Chairman), A. O. Stanley (U.S. Chairman). Standing—C. E. Smith (U.S. Secretary), Lawrence J. Burpee (Canadian Secretary), G. W. Reik (Reporter), John H. Bartlett (U.S.), Sir Wm. H. Hearst (Canada). Mr. Magrath resigned 1936, succeeded by Charles Stewart. Jesse B. Ellis now United States Secretary.

people on both sides of the border already had in its ability and integrity.

The Commission, in issuing its Order approving of the dam, provided for the establishment of an International Board of Engineers, which would have perpetual jurisdiction over the dam, and would be responsible at all times to the Commission. This idea of a Board of Engineers proved so satisfactory, that similar Boards have been set up from time to time to take care of similar international developments approved by the Commission, at various points along the boundary.

The irrigation problem connected with the St. Mary and Milk Rivers has already been mentioned. This was put under the jurisdiction of the Commission by a particular clause of the Treaty. These two rivers both rise in Montana and cross the boundary into Alberta. The former empties its waters into the South Sas-

katchewan, and ultimately into Hudson Bay. The latter, after a course of a hundred miles or so in Canada, returns to Montana, discharges into the Missouri, and finally reaches the Gulf of Mexico. The Treaty provided how their waters were to be divided between the farmers of Montana and Alberta for irrigation purposes, and put upon the Commission the duty of seeing that the terms of the Treaty were carried out.

It happened, however, that when the matter came up for consideration counsel for the United States and Canadian Governments put forward conflicting interpretations of the clause of the Treaty relating to the St. Mary and Milk Rivers. This raised a difficult situation, as the two Governments had negotiated and signed the Treaty, and their legal representatives now could not agree as to what it meant. The Commission seemed to be on the

horns of a dilemma. Finally they decided upon a common sense and, as it proved, very effective, solution. Going out to Montana and Alberta, they got groups of representative farmers, American and Canadian, around a table, talked the matter over with them frankly, then prepared an Order that, without attempting to say what the Treaty did or did not mean, gave the farmers that of which they were urgently in need, water for their land.

Members of the Canadian Geographical Society, belonging as they do to the class of thoughtful citizen that is concerned not only with the internal welfare of his own country but appreciates the supreme importance of maintaining the most friendly relations with his American neighbours, must inevitably be interested in the International Joint Commission as an agency that makes for peace. As men and women devoted to the cause of Geography in its widest sense, physical, political, economic, and human, they may, it is hoped, welcome this brief account of an international organization whose activities touch Geography at many points.

They may, perhaps, also be reminded that such eminent Canadians and Americans as Sir Wilfrid Laurier, Sir Robert Borden, Mackenzie King, R. B. Bennett, Vincent Massey, John W. Daffoe, Theodore Roosevelt, Franklin Roosevelt, Chief

Justice Hughes, Cordell Hull and Norman Armour have spoken in high terms of the value of the International Joint Commission to Canada and the United States, and as an example to the world. Of the two great statesmen who negotiated the Treaty, bringing the Commission into existence, one, Lord Bryce, said, "Its creation was one of the best things done in our time for peace and good will between the British Empire and the United States," and the other, Elihu Root, wrote in his ninetieth year, "Its work is a signal illustration of the true way to preserve peace, by disposing of controversies at the beginning, before they have ceased to be personal, and nations have become excited and resentful about them."

Put in its simplest terms, the purpose of the International Joint Commission is to encourage in every way the spirit of good-neighbourliness, and that spirit is the only cure for the unrest and bitterness and suspicion that are at the root of the troubles that surround us, and that may at any moment drive the world into another and even more terrible war. Find some way of planting that seed in the hearts of the nations and you will accomplish what has never been done, and never can be done, by congresses or conventions, armies or navies,—bring permanent peace to a sadly troubled world.

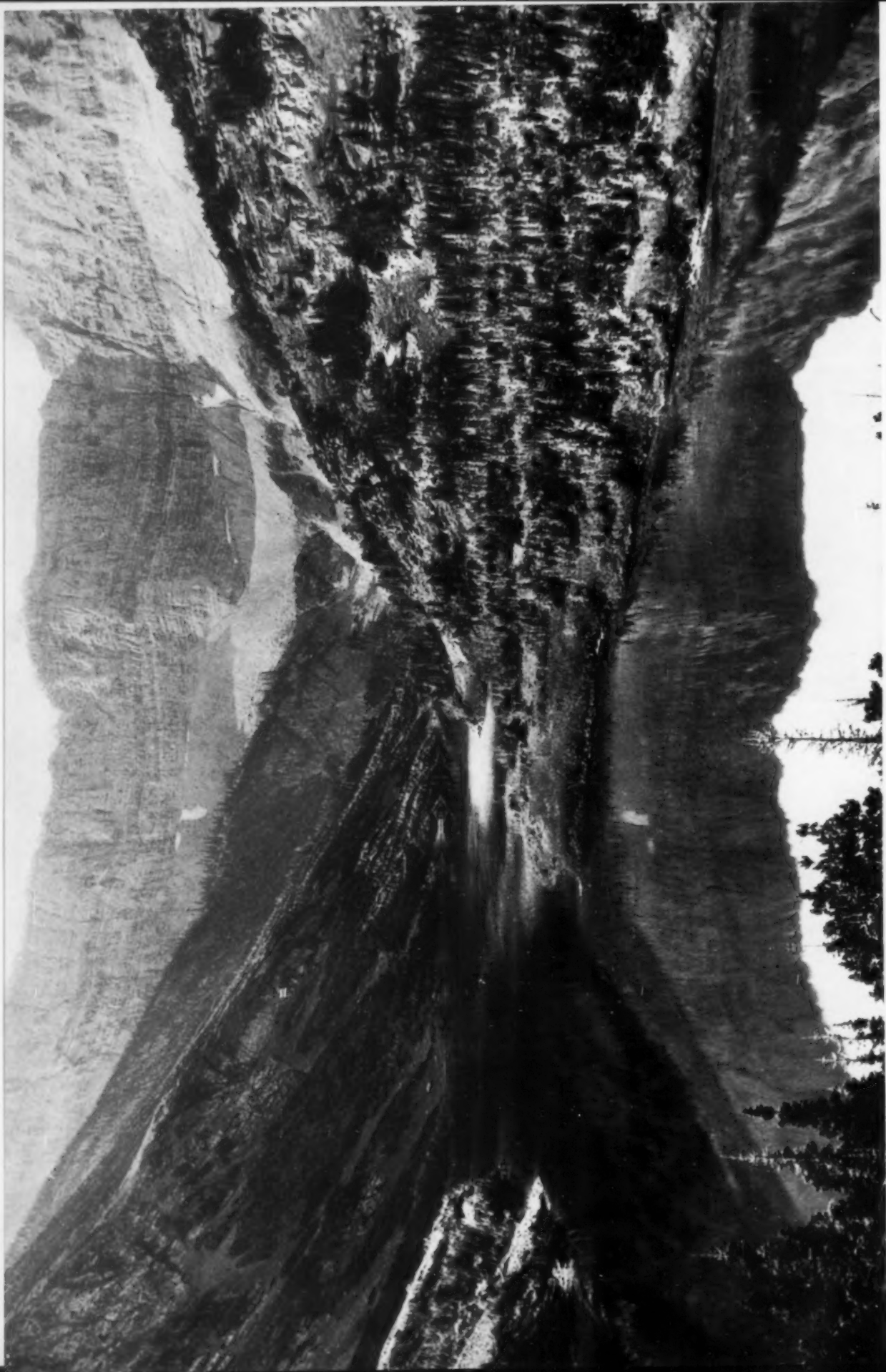


HON. CHARLES STEWART, Chairman for Canada.



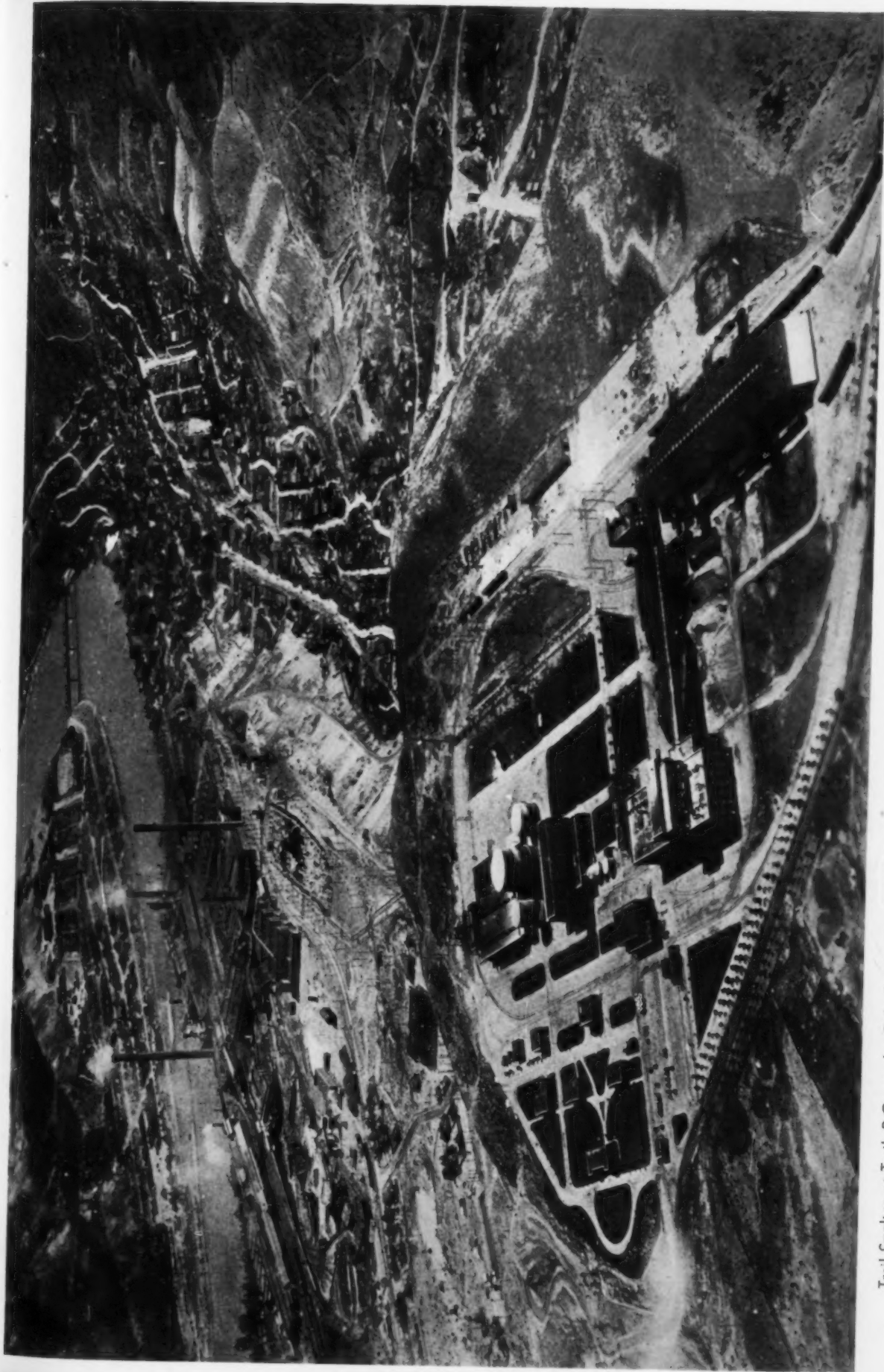
HON. A. O. STANLEY, Chairman for United States

International Joint Commission.



Bertha Lake, in Waterton Park, Rocky Mountains. The lake is in the Province of Alberta. The bold, rocky wall in the background is Mount Richards, near the International Boundary.

Bertha Lake, in Waterton Park, Rocky Mountains. The lake is in the Province of Alberta. The bold, rocky wall in the background is Mount Kichards, rear the International Boundary.



Trail Smelter, at Trail, B.C., on the Columbia River. Smelter in left background, chemical fertilizer plant in foreground. Sulphur fumes, which farmers across the boundary in Washington State complained were ruining their farms and orchards, are now used as a base for the fertilizer, and the latter is being marketed in Asia.





Waterton Lake in Waterton-Glacier International Park, in the Rocky Mountains. The International Boundary runs across the lake.



The International Joint Commission has since
 its foundation shown it would be capable of
 its line of action, of peace and settled
 disputes before 15 years, as shown, perhaps, in
 the unwritten alliance of friendly nations
 for good action.

Tweedsmuir

Ottawa, Jan 30, 1936.

His Excellency Baron Tweedsmuir of Elsfield, Governor General of Canada.

THE WHITE HOUSE
WASHINGTON

The establishment of the International
Joint Commission was unquestionably one
of the most notable steps taken by
the United States and Canada in their
continuous efforts towards eliminating
causes of possible friction between
the two countries.

Franklin D. Roosevelt



THE SECRETARY OF STATE
WASHINGTON

The International Joint Commission
has made real contributions to the am-
icable relations between the United
States and Canada by providing a
forum for the speedy examination
and settlement of disputes.

Jan. 4th 1936.

Cordell Hull



*for the International Joint Commission, Ottawa, with
the regards of Franklin Roosevelt*

Franklin D. Roosevelt, President of the United States of America



Jan. 26, 1934 -

Cordell Hull

Cordell Hull, Secretary of State of the United States.



The creation of the International Joint Commission was in all of fact a human intelligence and good will on the part of the people of Canada and the United States. It has become a silent witness to the wisdom of these men - men a century old - not to arm against each other, and to the power of non-violence. To our two countries it is the guardian of the most precious heritage we hold in common.

W. L. MacKenzie King.

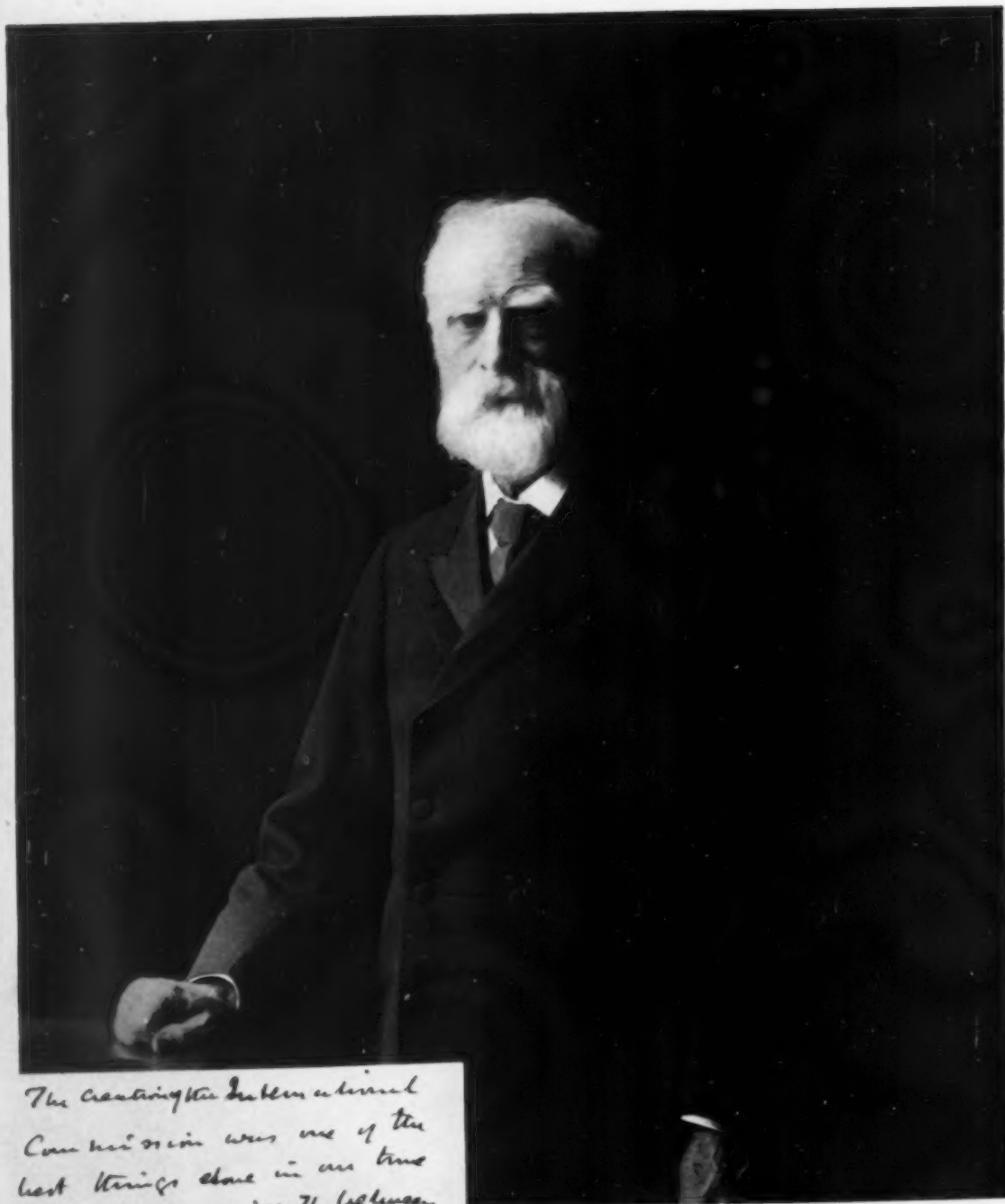
Ottawa, January 1936.

William Lyon MacKenzie King, Prime Minister of Canada



John A. McGrath, Esq.
 Distinguished Chairman, Canadian Section, International
 Joint Commission, — a successful example of what the
 will for good will & neighbourliness may accomplish in
 International affairs.
 With kindest regards of
 Ottawa, 9th January 1936. R. B. Bennett

Richard Bedford Bennett, formerly Prime Minister of Canada.



The creating the International
Commission was one of the
best things done in our time
for peace & goodwill between
the British Empire & the
U. S.

Believe me
Very truly yours
Bryce

James Bryce

James Bryce, afterwards Lord Bryce, wrote of the Commission he and Mr. Root had helped to set up: "The creation of the International Joint Commission was one of the best things done in our time for peace and goodwill between the British Empire and the United States."



*For the International Joint Commission whose work is a significant illustration of
the true way to preserve peace - by disposing of controversies at the
beginning before they have ceased to be personal and nations have
become excited or resentful about them.*

Elihu Root

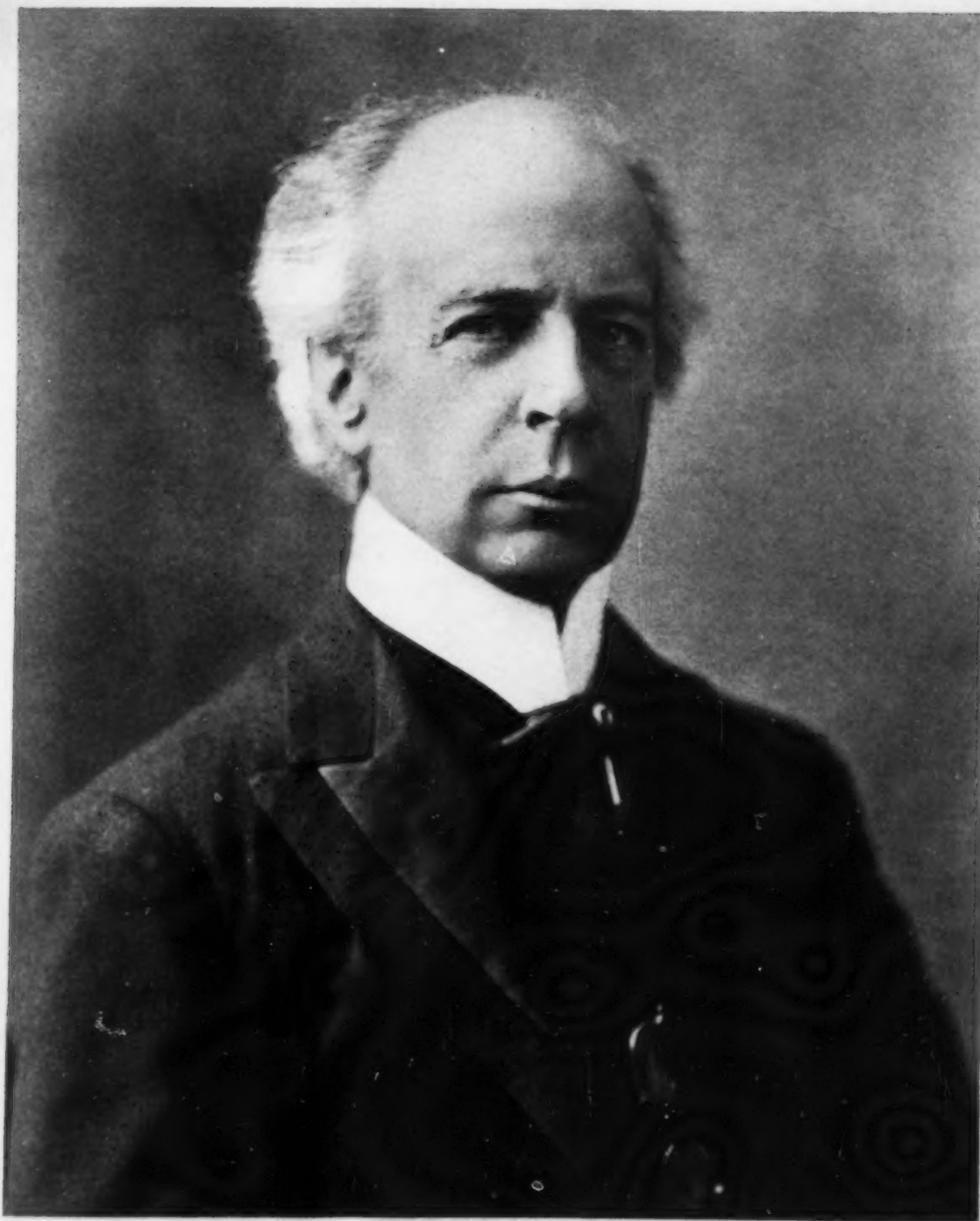
February 1935



Dec 20th 1915

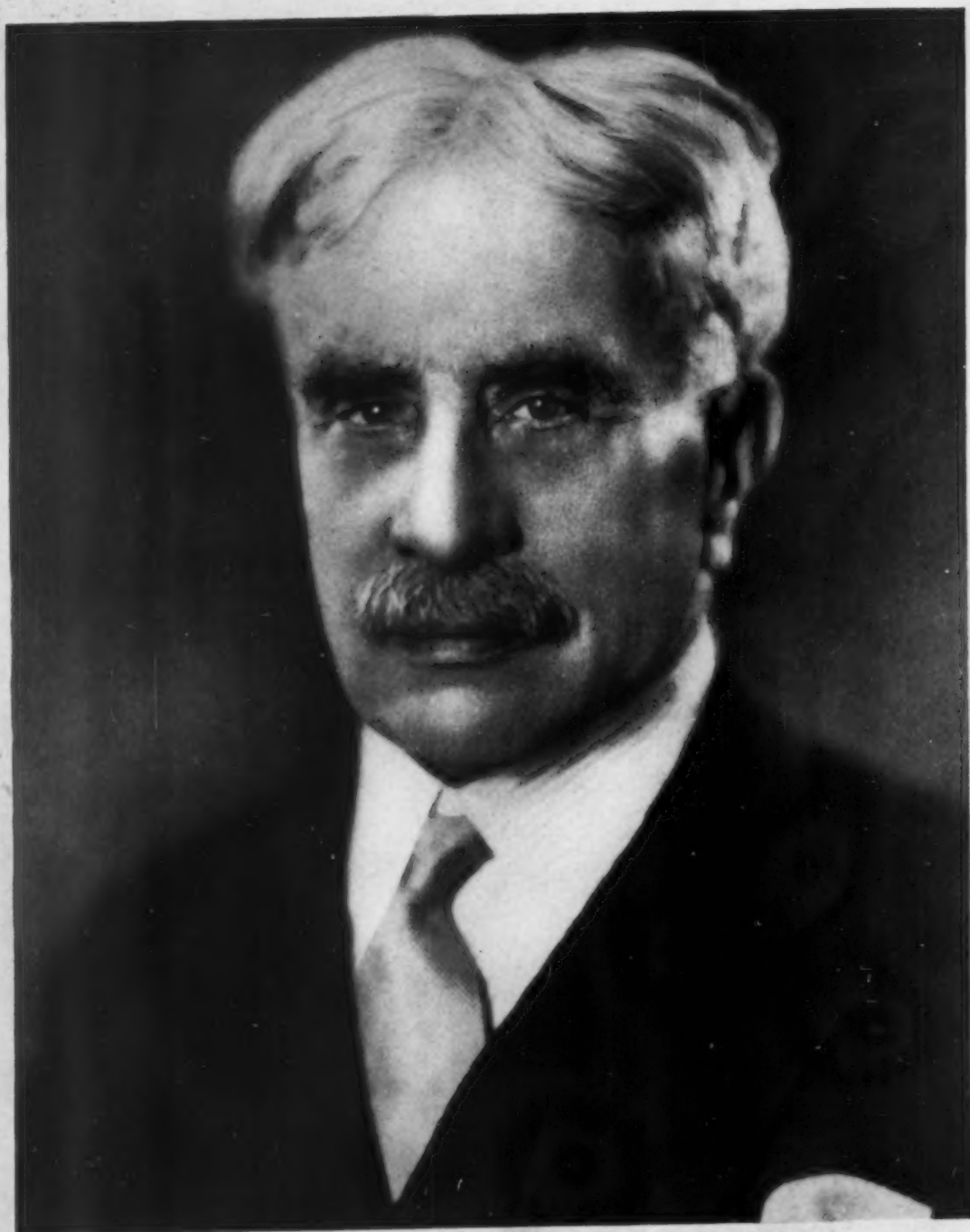
with the high regard of
Theodore Roosevelt

Theodore Roosevelt, President of the United States when the Treaty of 1909 was negotiated and signed, and a strong believer in the value to both countries of the International Joint Commission.



Wilfrid Laurier

Sir Wilfrid Laurier, Prime Minister of Canada at the time the Treaty of 1909 was signed, and one who was wholeheartedly in favour of close cooperation between Canada and the United States.



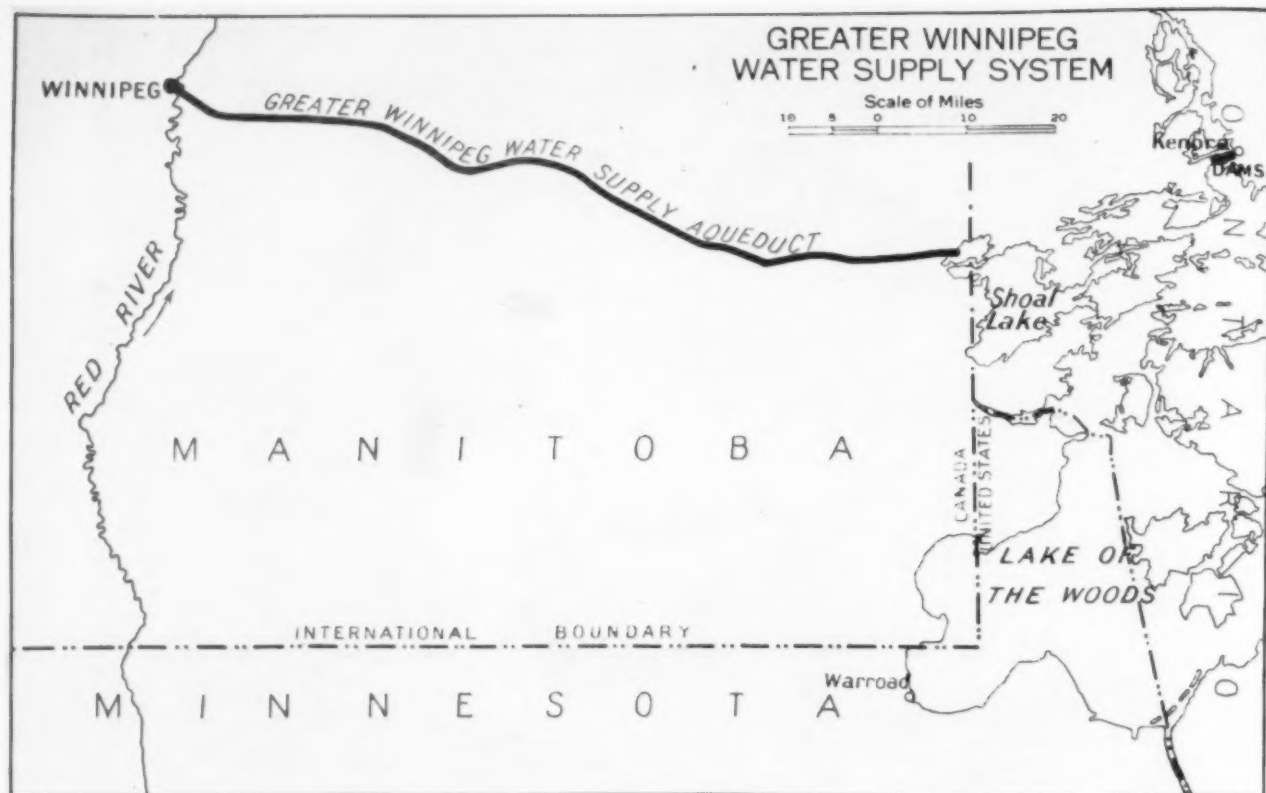
The International Joint Commission gives service not only to two great neighboring Nations but to the World in Exemplifying good will and friendly Endeavour for the Cause of public right and peace on Earth. Ottawa 27 November, 1934.
Robert Laird Borden.

Sir Robert Laird Borden, Prime Minister of Canada, 1911-1920.



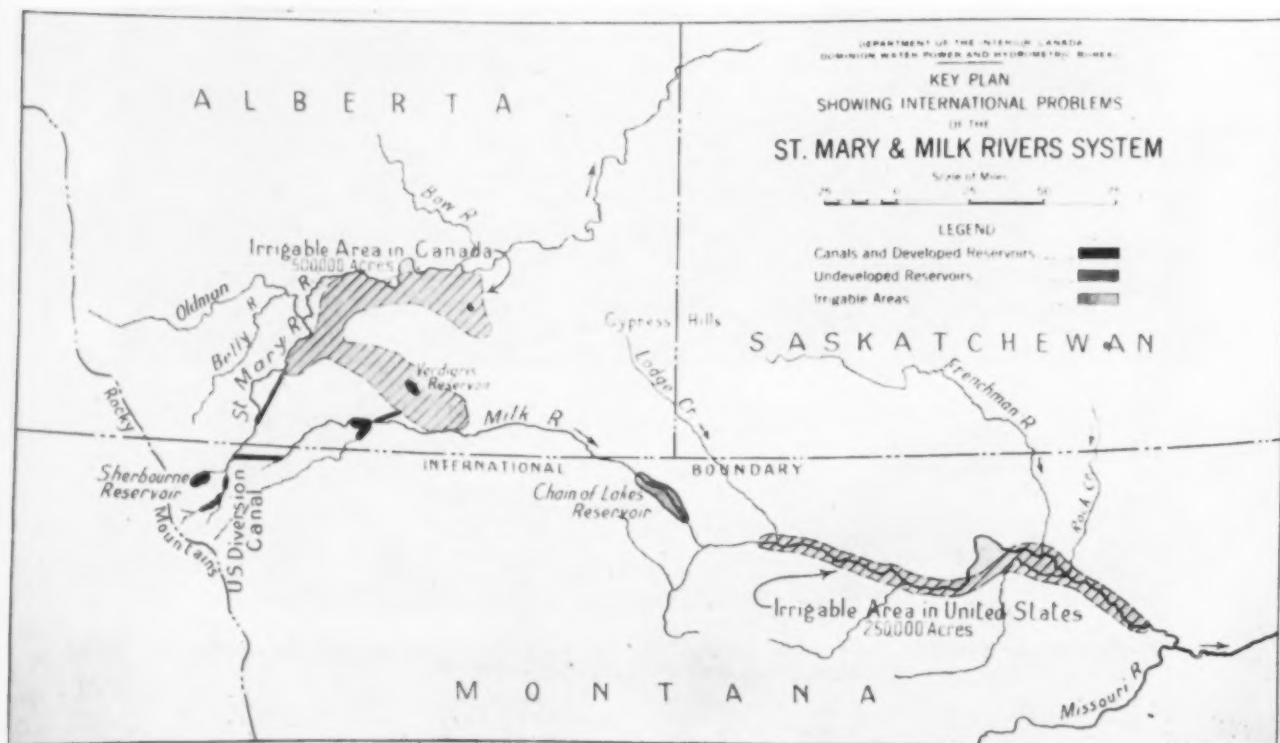
*The International Joint Commission
With Good Wishes of
Herbert Hoover*

Herbert Hoover, President of the United States, 1929-1933, has taken a keen interest in the work of the Commission, both during and since his term of office.



Winnipeg's water supply, which comes by a long aqueduct from Shoal Lake, a tributary of the Lake of the Woods, was authorized by the International Joint Commission in 1914. Water diverted from Shoal Lake is diverted from boundary waters, and must have approval of the Commission.

The St. Mary and Milk Rivers (below) both rise in Montana, and cross the boundary into Alberta. The former empties into the Saskatchewan, the latter returns to Montana and discharges into the Missouri. Use of the two rivers for irrigation in both countries is a special problem of the International Joint Commission.



RATTLESNAKES IN ALBERTA

by LORIS S. RUSSELL

ALTHOUGH I spent my boyhood in Southern Alberta, and have returned to that part of the province many times since as a geologist, I had never seen a living rattlesnake in his native haunts until the summer of 1935. Tall stories of rattlers were easily encountered, but always the boundary of rattlesnake range seemed to retreat before my wanderings. Even in 1934, when our field party reached territory that was generally reported—and I learned later correctly—as rattlesnake domain, it was too late in the season to find more than shed skins on the prairie, and collections of rattles in the cowhands' bunkhouse. But the last two years were different. We met this interesting if unpleasant reptile in numbers, and in most stages of its life history.

Look at your map of Alberta for the southernmost stream in the province. That is Milk River. It rises in north-western Montana in two branches, which unite on the Canadian side of the boundary, and then flows eastward about 85 miles, through prairie and badlands, until, like a discontented immigrant, it returns to the land of its origin. Milk River Valley is the favourite haunt of rattlesnakes in Alberta, but only the eastern portion; range 10 seems to be the western limit of their territory here. It is very rare to find a rattlesnake west of the bridge near Groton post office. From range 10 they are plentiful all the way down the river to the "eastern crossing." They inhabit the coulées and prairie south of the river to beyond the International Boundary, and also extend their range eastward an undetermined distance toward the southwest corner of Saskatchewan. Old timers in the Milk River district say that the appearance of rattlesnakes outside of the valley is recent, and that they are slowly spreading northward into the farm land. However, they were observed south of the river in 1874 by members of the International Boundary Commission.

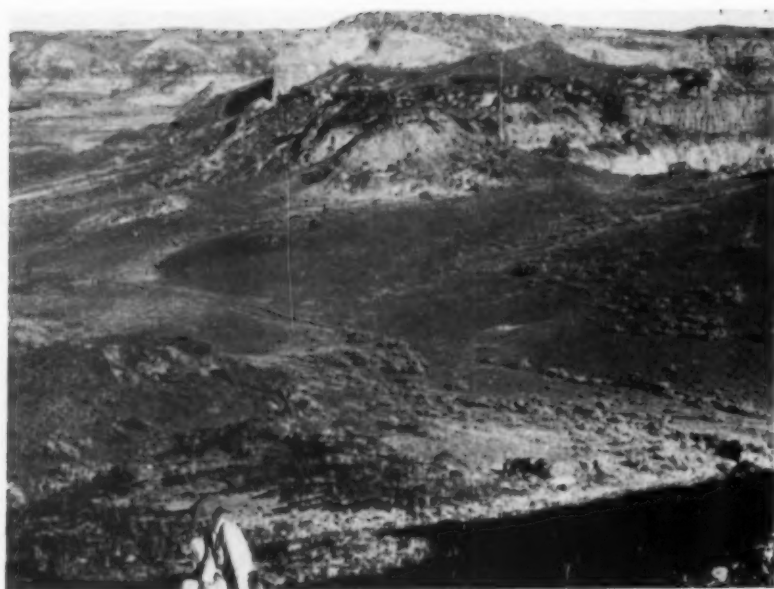
North of Milk River Valley the rattlesnakes seem to be absent for some distance, although coulées like Etzikom and Chin would appear suitable for their habitation. They are again encountered along the South Saskatchewan drainage system, where my associates report them on Oldman River, from the mouth of the St. Mary to the juncture with the Bow, and thence on down the South Saskatchewan Valley at least as far as Bow Island. They are reliably recorded from the Medicine Hat district and for an undetermined distance downstream in the valley of the South Saskatchewan.

The Alberta species is the Prairie rattlesnake, *Crotalus confluentus*. A closely related species or variety occurs in the drier parts of southern British Columbia (Pacific rattlesnake, *Crotalus oregonus*). The species of southwestern Ontario is the Timber rattlesnake, *Crotalus horridus*. It is only with the prairie rattlesnake that the writer has had experience in the field, and it is with that species that the present remarks are concerned.

In rattlesnake country these reptiles are a never-failing source of conversation, being superior even to the weather in this respect. Naturally, we all became well stocked with snake stories, to which we were soon able to add our own experiences. As it seemed a shame that such a store of information and misinformation should be wasted, the present article resulted.

There are a few stock questions that nearly everybody asks on learning that you have been consorting with rattlesnakes. To the first of these, "Are there many of them down there?" I generally reply, "Too many." Our largest count for any one day was 29, but 3 or 4 was a common score. Our observations indicate that they are most numerous at the mouth of Pendant d'Oreille coulée, near the Taber ranch. This was where our highest score was run up. But the biggest individuals that we saw were farther west, around Bear Gulch and the Milk River ranch.

Badlands south of Milk
River, southeast of Comrey.



Lost River Valley on the left,
Milk River Valley on the right,
looking east along
the International Boundary.

The "eastern crossing,"
looking westward or up-
stream, where Milk River
returns to the United States.
The International Boundary
follows the valley floor for
some distance here.





The Higdon ranch, in the
Milk River Valley, near
Comrey, Alberta.



North crest of Milk River
Valley, south of Comrey. A
favourite haunt of rattle-
snakes.



Badlands south of Milk
River, southwest
of Comrey.

"How big do they get?" asks my questioner. Well, reports of six-foot rattlers are met with, but these may be based on encounters with the harmless bull snake. The largest specimen that I have measured reached a length of 4 feet, 4 inches. I have seen a preserved skin from Milk River Valley measuring over 5 feet. Probably the average length is about $3\frac{1}{2}$ feet.

"Are they dangerous?" This opens up a large field for discussion, but if I must reply yes or no, I shall say, like a parliamentarian, that the answer to the question is in the negative. There are only two well vouched-for cases of rattlesnake bite in Alberta known to the writer. The first of these concerns a reckless cowhand, who tried to pull a disappearing snake from a gopher hole by its tail. The rattler, however, had not continued right on down, but had doubled back on itself, and was in a position to express its resentment at the familiarity. The rider was bitten between the fingers, but recovered. In the other case a young man was handling very young rattlesnakes with a short stick, too short, it appears, for one of them lashed around and nipped him on the hand. He was rushed to Medicine Hat (the young man, not the snake), and recovered after treatment. It is thus somewhat open to question that Alberta rattlesnakes are sufficiently venomous to kill a full-grown man, but I do not suggest any experiments to settle this. I was told of a cow that was bitten on the nose and subsequently died; in contrast to this, I saw a little sheep dog at Bow Island that had been bitten on the cheek and had completely recovered.

The young of the rattlesnakes are born "alive," that is, the eggs hatch within the mother. Pregnant females are sometimes killed and cut open, whereupon the unborn but active young are liberated. This, perhaps, is the origin of the legend that young rattlesnakes crawl down the throat of their mother when danger threatens. Birth apparently takes place during August, and there are about 10 or 12 young in a litter. The young remain with the mother for the rest of the summer. They are more active than the adult, and will strike readily. They have no rattle, only the "button," but they are equipped with fangs, and apparently with a functional poison gland.

I have no observations on the growth of rattlesnakes, but suspect that they reach a fair size in two or three years. The idea that age can be determined by counting the segments of the rattle has been repeatedly disproved. It was our observation that partly grown individuals resented interference more actively than did their elders.

If you come upon a rattlesnake before he is aware of your presence—this doesn't happen often—you will observe that he lies in loose folds, like an old piece of rope thrown on the ground. If he detects you at a distance he will glide rapidly away, seeking a gopher hole or a crevice. If escape seems impossible, however, he snaps himself into a loose coil, and draws his head back like a horizontal letter S. At the same time he sounds his warning, a few short buzzes on his rattle. If he realizes that you are seriously interested in his lack of welfare, he will vibrate the rattle harder and faster, until it becomes a blur to the eye, and, if further annoyed, will strike out at you viciously. This is the standard behaviour, and has given rise to the saying that the rattlesnake is a gentleman, and gives you fair warning. However, this is not always so, and members of our party were sometimes struck at with no warning at all. This is commonly explained as due to blindness during the annual shedding of the skin. Such may be the case, but I suspect, from observations on both free and captive snakes, that the rattler is something of an individualist, and that the confirmed old grouch has his reptilian counterpart. August is generally cited as the most dangerous month, but we found the rattlesnakes most irritable in September.

From conversations beforehand, we had gathered the impression that rattlesnakes prefer the open, sunny spots. This, we found, is true only in the late summer, when the sun is getting low. In July and August they choose warm but shady places, and are most frequently found among large clumps of sage brush. In ignorance of this preference, I once walked carelessly into a grove of willows, and stepped right on a full grown individual that was peacefully resting there. The snake, apparently, was as surprised as I,

and writhed around for a second or two before recovering his balance and his dignity. For this moment he appeared unable to strike, and when he was ready, I was out of range. Deliberate attempts to make rattlesnakes strike are frequently unsuccessful, but this may be due to the fact that they can distinguish between warm, living flesh and a cold, inanimate stick. A case of seemingly unjustified pugnacity occurred one fall, when a rattlesnake climbed a small hill, and finding me on the summit operating a transit, did its best to chase me off; possibly I was occupying its favourite sunning ground.

Rattlesnakes are easily killed, as they will stand and fight, if pursued. Stones bounce off the body as from a rubber hose, but a crushing blow on the head is fatal. A rattlesnake, unable to escape from a determined attack, will often hide its head beneath a fold of its body. Most people in rattlesnake country kill them on sight, but there appears to be no danger of these reptiles' extinction. On the contrary, they are said to be on the increase. When a snake has been killed, it is still wise to handle it carefully, for the body is full of reflex reactions, and may strike even after the brain has been destroyed.

It is also not difficult to catch rattlesnakes alive. With a cool head and steady nerves, plus certain precautions, it is even possible to pick them up in the bare hands, as the accompanying photograph demonstrates. However, as this is dangerous at best, I shall not describe the method. My own technique employs a stick about 5 feet long, with a noose of wire at one end, connected to a long, straight piece of wire by means of which the noose can be tightened at the other, or non-snake end of the stick. The noose is slipped over the snake's head as it lies coiled. A fine struggle results. In my first attempt I let the snake remain on the ground; by its frenzied writhings it throttled itself, and died a few days later. After that experience I always hoisted my catch clear of the ground, where it could find no purchase for its powerful body. It was then dropped into a suitable box or bag for transportation.

The food of rattlesnakes in Alberta appears to be mice and the young of gophers (*Citellus richardsoni*). However, gophers apparently are absent from the rattlesnake portion of Milk River Valley, which may account for the spread of the

snakes to the adjacent prairie, when gophers occur. The rattlesnake is thus a destroyer of agricultural pests, but I am afraid that most farmers, or at least their wives, would consider the remedy worse than the disease. Rattlesnakes in captivity can live for months without eating, and usually have to be forcibly fed.

The rattle is a chitinous structure on the end of the tail, and consists of a series of loosely interlocking segments. These segments are hollow and empty, the noise being produced by the vibration of the segments against each other. The result is a very characteristic dry, almost metallic whirr. Some grasshoppers make a similar sound, as do the dry pods of certain vetches when struck, but there is no mistaking the real thing when you hear it. The best rule, however, is to jump first and investigate afterwards. It is surprising how soon the subconscious mind takes over the duty of watching for rattlesnakes, and you will find yourself at the far end of a three-foot jump almost before you realize the reason for it. The posterior segments of the rattle may become detached, or broken off, and a large snake is often seen with perhaps only 5 or 6 segments. Exceptionally complete rattles may have 10 or 11 segments.

Besides giving the characteristic warning described above, rattlesnakes sometimes hiss when annoyed. The hiss is produced by strongly exhaling or inhaling the breath. Animals, as well as men, have learned the significance of these sounds. Horses, being nervous animals, jump sharply when they hear the rattle. It is said that new horses brought to rattlesnake country show no fear at first, but learn quickly on association with more experienced members of the herd. Cows, more phlegmatic by nature, do not seem to worry much, but perhaps their hides are too tough for the rattlesnake's fangs. Pigs are said to be impervious to the bite.

The poison apparatus of a rattlesnake consists of fangs and glands. The fangs are two slender, recurved teeth, one on each side, which are hollow and provided with a slit-like opening not quite at the tip. They have often been compared to the hypodermic needle. There is really a series of these fangs on each side, and if the functional one is lost, the next in line takes its place. The poison gland is situated on each side, under the jaw muscle, which can thus squeeze the poison



Undecided. Rattlesnake near Onefour.

"The only good rattlesnake is a dead one." This apparently is the attitude of most residents towards their reptilian neighbours.
Dead rattlesnake near Pendant d'Oreille.





Trying to escape. Rattlesnake near Onefour, Alberta.

Rattlesnake den, near Comrey. The adult rattler may be seen emerging on the right, while the dark mass on the left consists of young snakes, coiled upon one another.



from the gland, through a duct, and thence through the hollow tooth. When you examine the mouth of a rattlesnake (preferably dead) you find that each tooth is enclosed in a whitish fold of tissue. This sheath is pushed back when the tooth is driven into flesh.

Description of the symptoms resulting from rattlesnake bite makes very unpleasant reading, and will be omitted here. They are described in numerous standard medical works, and notably in the monograph on snake poisons by the late Dr. Noguchi. Sufficient is it to say that they are extremely painful, if not fatal, and are liable to have permanent after effects.

The most recent authoritative discussion of rattlesnake bites is contained in the *Scientific American* for August, 1935. The author of this article, W. A. Bevan, gives photographic evidence that rattlesnakes cannot bite through even thin leather. From this it may be concluded that high-top boots furnish good protection, some lurid stories to the contrary. At one time the standard treatment of rattlesnake bites was incision of the wound and introduction into it of potassium permanganate crystals. This procedure became discredited, and injection of anti-venom serum, prepared by a method analogous to that for diphtheria antitoxin, took its place as the recognized therapy. It now appears, however, that serum is effective only when used in rather large quantities. The treatment recommended in the article cited above consists of incision and suction, not to cause bleeding, as the old treatment intended, but to extract the mixture of lymph and venom, which is the form in which the poison spreads through the body. A light tourniquet is used, and the incisions are made short and deep with a pointed lancet. Suction is accomplished by means of wide-mouthed glass tubes, fitted with rubber bulbs, and this treatment is kept up intermittently for about 24 hours. Antiseptics, such as iodine, must be used liberally, for rattlesnake bites are more susceptible to bacterial infection than are ordinary wounds.

The strike of the rattlesnake is very fast, like the lashing of a whip. At the moment of impact the jaws may be open almost 180°. The striking distance depends upon the length of the snake, but probably seldom exceeds 2½ feet.

We were never bothered by rattlesnakes invading our camp, but ranchers in the district frequently had them visit their gardens, where the warm, bare earth may be an attraction. On such occasions the common fate of the snake is decapitation with a hoe. They are occasionally found sprawled out on dirt roads, where they may come out second best in an encounter with an automobile. You are likely to find rattlesnakes among blocks of stone in the badlands, where they can crawl out of sight and curse you with their caudal organ of expression. But most commonly you will run into them on sage-brush flats along the river bottom, or at the very crest of deep valleys. Look out for large clumps of sage-brush, with twisted stems. One of those twisted stems may be a rattlesnake. And be careful, when you investigate him, that there isn't another snake in that clump just behind you. If you haven't lost any rattlesnakes, give them plenty of room, or, if you must kill them, do so with stones or a long stick.

Some people favour hat bands and belts decorated with rattlesnake hides, although the pattern of the prairie rattler is not particularly attractive. The colour is a dull brown, lighter below, with transverse spots or bars of dark brown on the back. The side of the head beneath the eye has a characteristic light stripe. Here, also, you will see the curious pit, between nostril and eye, which gives to the members of the rattlesnake family the name of pit vipers. A recent study of this pit has shown that it is a highly innervated organ capable of distinguishing warmth and movement at short distances. Thus, in the darkness of a gopher burrow the pit might serve in the recognition of prey.

But to get back to our skinning, the operation is complicated a trifle by the fact that the rattlesnake tapers both ways from the middle, so that the incision has to be made about midlength. We used alum to tan the skins, with indifferent success. Proper tanning is a process of many steps, involving the use of salt, oxalic acid, and other chemicals.

About September, when the first cold days arrive, the rattlesnakes may all disappear, but a warm spell will bring them out again. They den up in numbers for the winter, and pass the cold months in a torpid state. I have no observations

RATTLESNAKES IN ALBERTA

on their date of emergence, but presume it to be that of the first warm weather, probably early in May. It is quite likely that a warm interval in the winter, such as often follows a chinook wind, might bring some of them out.

Such is the prairie rattlesnake in Canada; no trouble hunter, with few exceptions, and asking only to be left alone. Give him a chance, and he will get out of your way. Corner him, and he will put up a valiant fight. If you don't

like rattlesnakes, stay away from their favourite haunts. If you must go there, wear high boots or leather leggings, preferably with slacks outside. Keep one eye cocked for likely places, and develop an instinctive habit of jumping from any buzzing noise. When you find a rattlesnake, you will do better to keep your distance, and leave close investigation to silly people like the writer. It has been well said that the best treatment for snake bites is not to get bitten.



If you must handle rattlesnakes, Bill Wuest demonstrates the technique.



THE SEVEN MOUNTAINS

by STEWART MACNUTT

ONE of the attractions of a visit to Cologne is the view from the spire of the Cathedral. Beneath flows the darkly silver stream of the Rhine. On all sides is a dull green countryside, faintly shimmering in the mist. But there is little to suggest the legendry of the river. All that can be seen is one of the great industrial regions of the world. The landscape, gently rising to the south, is splotched with marks of the machine age. Everywhere are gray smudges of factories.

Before the natural beauty of the Rhine may be witnessed, there is necessary a sail of several hours against the rapid, swirling current. Shortly after passing the university city of Bonn there appear the Seven Mountains, low-lying harbingers of the capacious scenery and romance that follow. The sides of the hills are indented by carefully graded vineyards of assorted colours. Actually there are more than seven, but that number has been accepted, for it bespeaks the myth and legend with which the region has for generations been associated. The Seven Mountains are one of the cradles of German mythology, the scene of great exploits in misty epochs.

Two great hills tower on the right bank, the Petersburg and the Drachenburg. Nestled between them is the town of Koenigswinter, a rendezvous of tourists and trippers. Week-ends bring excursions of Germans from up and down the river. But in these times Koenigswinter has its problems too. Most of the citizens are inn-keepers, or in some way cater to the tourist trade. But it keeps up appearances. The hostelrys are painted in a gaudy yellow or red, or are whitewashed. Shaded by rows of trees and decorated by flower plots is the waterfront, thronged in the evenings by pleasure-seekers.

Roads of hucksters' stands lead the way to the principal attraction. This is the ruin of castle Drachenfels, which towers over the river on a fifteen hundred-foot precipice. The approach is by a steeply-graded hill at the foot of which the visitor is greeted by the antic clatterings of a horde of donkeys and their solicitous attendants. But it is easy to walk up the

hill afoot. The shaded path through clusters of great trees gradually leads to the magnificent outlook which suddenly bursts upon the eye. Far beneath is the Rhine, unwontedly peaceful. To right and left is a scene of surpassing excellence. When the visitor looks behind, the mediaeval scene is overlaid by a vast restaurant in the typical German style. Here, while taking needed refreshment, one can enjoy the splendid prospect and listen to some wandering guitarist whose melody and song combine powerfully in the thin air.

The ruin of Byron's "castled crag of Drachenfels" consists of three jagged walls of the mediaeval tower. Visible for miles around, it is a landmark that gives the Drachenburg its appearance of lofty antiquity. The country is probably much the same as Byron saw it—the sheaves of corn, the lush vineyards and the majestic Rhine winding between. Only the Rhine barges, rushing northward with the coal, iron and timber of Alsace, add a modern touch to the panorama.

The castle's main interest is a prehistoric one. Drachenfels, it is reputed, was the home of that devouring and fire-breathing monster, a dragon, which in ancient times oppressed the people and levied tribute upon them. One version is that the dragon was slain by the hero, Siegfried. But the more popular bears the stamp of Christianity. A Christian maiden, captured by the heathen, was offered as a sacrifice to alleviate the fury of the monster, and was bound to a tree which overhung the precipice. Early in the morning the dragon started from his den, spitting fire in his path. In sight of the maiden he prepared to devour her, when tremblingly she took from her bosom a crucifix and raised it to the morning light. The awful symbol caused the monster to turn, to dash itself backward over the precipice and to disappear in the river below. This incident is supposed to have commenced the conversion of the heathen on the right bank of the Rhine. The story is given added authenticity by the growth on the river slopes of Drachenfels of a particular grape from which is produced

Left:—Lorelei Rock, famous in song and legend.

the thick, red wine sold in Koenigswinter and appropriately designated Drachenblut, or Dragon's Blood.

Behind Koenigswinter, on a gentle slope of wooded upland, is the ancient abbey of Heisterbach. A walk of an hour's duration discloses glorious views of the gently waving eastern forest. Only the apse of the abbey remains, for it was destroyed during the barbarous warfare of the Reformation. But there are many memories of this sanctuary of pious men who were so respected by the folk of the countryside. It is related that in the dead of night the ghosts of the departed monks flit about the ruins, raising mute hands of accusation against the destroyers of their abode.

One of the most unusual of the Rhine legends is that of a young monk of Heisterbach. He was famed for his learning, but the depth of his knowledge impelled him to doubt the truth of Christianity and the authority of the Scriptures. One evening he sat in his cell, meditating upon what had been the constant subject of his thoughts—the passage of the Psalmist, "A thousand years are but as a day in Thy sight." To seek relief from his reflections he went forth into the cloister-garden where, after many restless wanderings, he fell into a deep sleep. Awaking in the morning, he entered the abbey. But in the chapel he encountered a strange prior and strange new brethren. He learned to his horror that, during his sleep, three hundred years of time had elapsed. His eyes distended, his hair whitened, his countenance became that of a dying person. Calling upon God to forgive his doubts, and urging his brethren to witness the truth of Christ, he died, upon his lips the text, "A thousand years are but as a day in Thy sight."

A short distance up the river on the side opposite Koenigswinter, there is a vine-covered stone arch. On the traditional site of a Roman fortification, this is all that is left of the castle of Roland, that most valiant of the paladins of Charlemagne. According to the legend, Roland, while on his travels, paid a visit

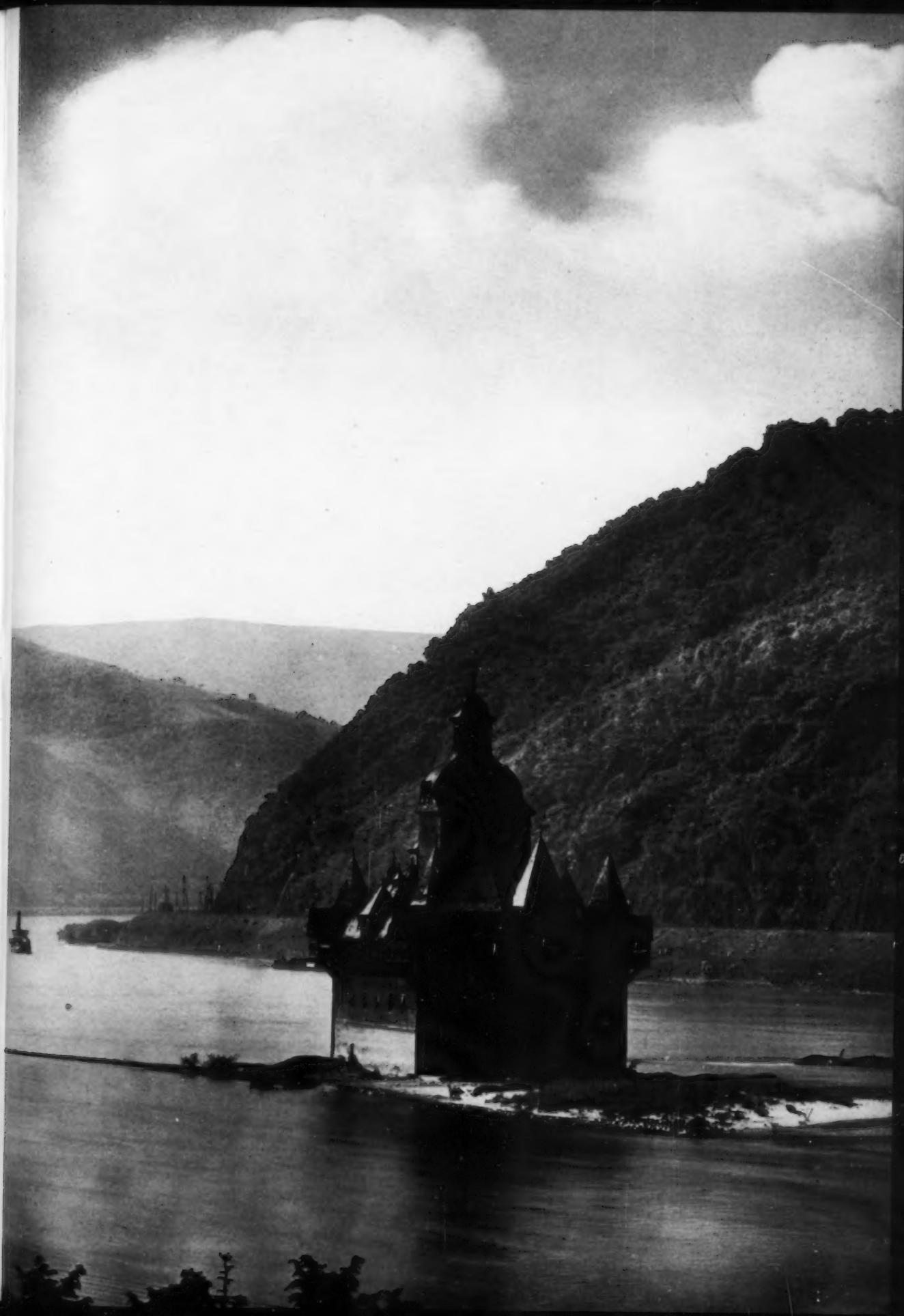
to Drachenfels, the master of which was Count Heribert. On sight of Hildegunde, the daughter of the household, he quickly fell in love with her. They were betrothed and a marriage was arranged. Count Heribert constructed for them this new castle of Rolandsbogen. Day by day they watched from the Drachenfels the masons ply industrious hands, and the tall towers rise.

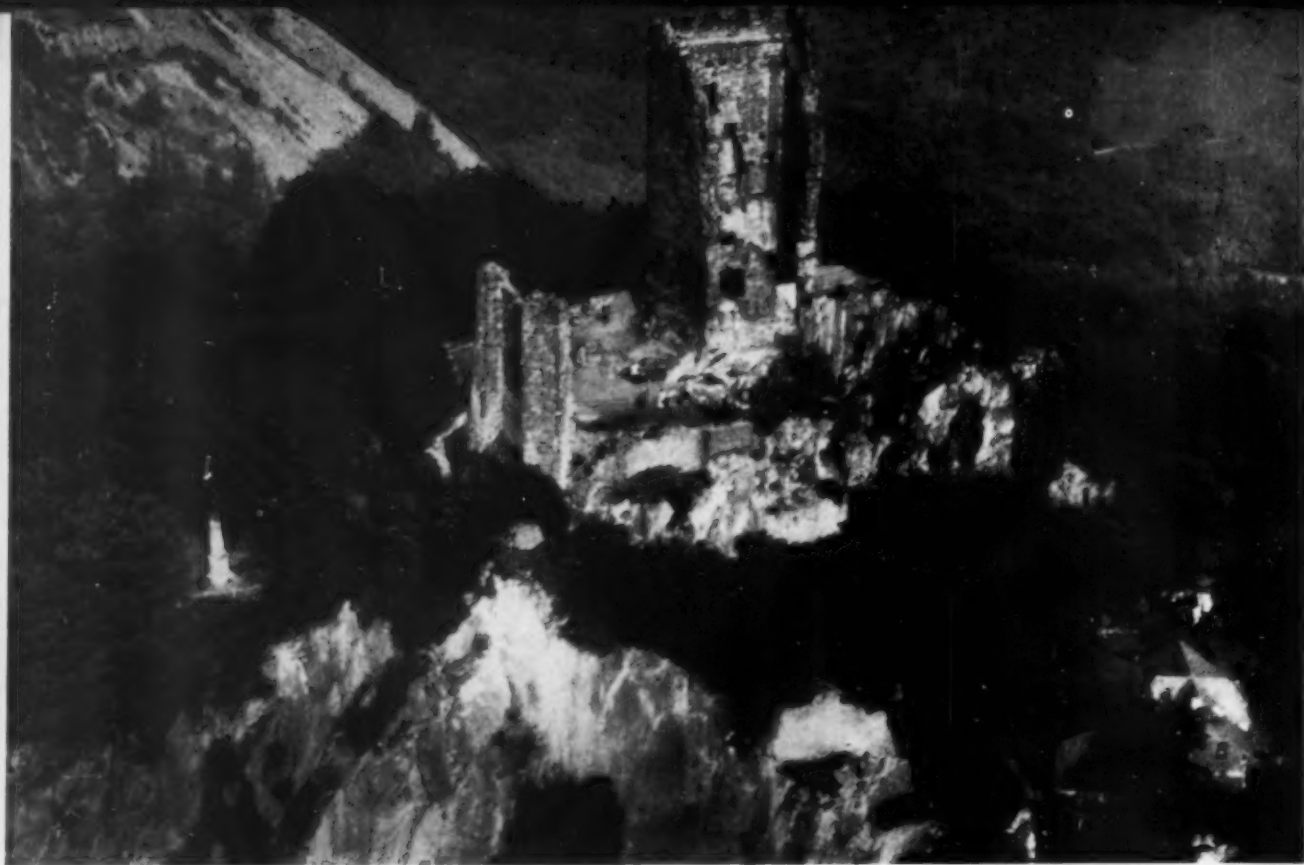
But Fate intervened. Just before their marriage an imperial messenger arrived to summon Roland to the campaign against the Moors in Spain. Reluctantly but dutifully he departed. For the anxious maiden several years of waiting ended in sorrow. Roland's death in battle was reported, and everywhere the loss of the celebrated champion was bewailed. Hildegunde, heart-broken, became the bride of the Church, and entered the convent of Nonnenwerth, on a green island in the middle of the river, just beneath the new castle whose stately walls had promised for her so much happiness.

The tragedy was that Roland had not been killed. After a long illness he returned to the Rhine to find that his bride was forever beyond his reach. In sorrow he took up his residence at the new castle. Almost within hailing distance of each other, but held apart by insurmountable barriers, Knight Roland and Hildegunde lived their last sad days.

These legends are but fragments of the past in the Seven Mountains. If the Thames be liquid history then is the Rhine also; and of all the Rhineland the Seven Mountains vie with any other region in the number and variety of their associations with the Germany of bygone days. And still to-day they are as picturesque as ever before. The river-front at Koenigswinter, while not unmindful of former solemnities, reflects the swift movement of life in Germany of the present era. Bands blare; in beer-gardens and wine-houses Teutonic voices shout songs of cheer; in the more secluded cafes older people sip their drinks, and quietly enjoy the beauties of life in the valley that is the Rhine.

Right:—Near Caub, the famous Pfalz, once a strong toll castle and famous in historic associations.





Castle Drachenfels, where it rears its ancient head 1,500 feet above the Rhine.

Germany's historic Rhine, and towering above (right) the Drachenfels of legendary fame: (left) the ruins of Rolands' castle.





Rheinstein castle, near Bingen, first mentioned in chronicles of A.D. 1279, was rehabilitated in 1825-1829. It is the home of an important collection of arms and antiques.

Burg Stolzenfels in a typical setting of forest clad hills of the Rhine.





The Pfalz, on guard in mid-river, while towering above stands the mediaeval castle Cutenfels.



A typical Rhine scene, terraced vineyards and medieval castles. In the centre foreground stands thousand-year-old Falcon castle, famous in Rhenish history and legend.



General John Hale

Photo of portrait by Sir Joshua Reynolds

GENERAL JOHN HALE—HIS PORTRAIT

by A. M. GOING

IN some of our Canadian homes lie hidden family records, half forgotten by the younger generation, that link the New World with the Old.

Here is the story of a man and his portrait that links the capture of Quebec by General Wolfe in 1759 and his friend Captain John Hale, in whose arms Wolfe died, with Harewood House, Yorkshire, England, the family seat of the Earls of Harewood and the home of H.R.H. Princess Mary, Countess of Harewood.

When General Wolfe, with his Red Coats and Highlanders, scaled the heights above Wolfe's Cove and reached the Plains of Abraham, beside him was John Hale, one of his young officers, just a year older than his leader. Wounded twice, Wolfe struggled on but received the fatal shot before his carefully planned victory was won. He lapsed into unconsciousness until someone cried "They run." "Who runs?" said the dying general. "The French," was the answer. Supporting his commander was John Hale, "Raise me up, Hale," said Wolfe, "Do not let my men see me die like this." But that was the last word—death came with victory. To Captain Hale his general had given despatches to be carried to headquarters, and for this service, under fire, the friend of General Wolfe was given a grant of land by George III.

Leaving for England with a higher rank, Hale returned to his Yorkshire home, "The Plantation," and there met Mary Chaloner, one of the beautiful daughters of William Chaloner of "Gainsborough" fame. "A soldier's wooing is not long doing," so the marriage soon took place. In Burke's Peerage you can read that in May 1761, Baron Harewood had married Anne Chaloner, also a daughter of William Chaloner and had taken her as his bride to Harewood House. Lord Harewood had already requested Sir Joshua Reynolds to paint his wife and her sister, the lovely Mary Chaloner. The latter was painted as "L'Allegra," and the picture has been reproduced many times. As a present to his sister-in-law, then Mary Hale, Lord Harewood asked Sir Joshua Reynolds to paint a portrait of General John Hale, and

the picture, a photograph of which is reproduced, hung upon the walls of "The Plantation," General and Mrs. John Hale's home, for many years. The portraits of Lady Harewood and her sister hang in the picture gallery at Harewood House side by side, as an English lady of title, recently visiting in Canada, told a member of the Hale Family.

General Hale was, in 1781, appointed Governor of Londonderry, Ireland. Later he commanded the 47th Foot, with which regiment he fought at Quebec. It is still in mourning for General Wolfe. At the request of George IV, General Hale raised the 17th Lancers, the regiment made immortal by Tennyson's "Charge of the Light Brigade," of which the 17th Lancers were the heroes.

General Hale died on March 20th, 1806, and his portrait came across the seas to Quebec to hang on the wall of one of those tall stone houses on St. Louis Street, which should thrill even the most casual tourist with stories their gray walls could tell. It was left by the General to his eldest son, Honorable John Hale, Receiver-General of Canada, whose house on St. Louis Street was also the receptacle for the country's specie. A long door was made beside the main entrance door facing on St. Louis Street and, until the street was paved, it was possible to see the deep ruts made by the carts laden with gold coins. From the Honorable John Hale's garden, behind the house, as Quebec gardens are, the ladies of his family could walk to the charming spot still known as "The Governor's Garden." They could stroll with the other ladies of the English colony of governmental and military circles across the green turf to the terrace, passing the spot where the tall shaft tells of the love of the people of Quebec for the generals who died in the same battle. "History gave them a common fame, destiny a common death and posterity a common monument," you read. In this unique way are Wolfe and Montcalm honoured. From the terrace, just a path with a railing for the safety of those who, then as well as now came to gaze at the ever-

changing scene, these ladies of fashion could see Levis' wooded shore and the broad river nearing the end of its journey to the sea. Sailing vessels with sails that caught the sunset glow brought men and merchandise from afar or carried furs and Canadian products across the seas. Bateaux crossed to Levis, taking travellers to the southern shore. Indians in their birch canoes came from encampments near by to trade with the white man. While the river was a distinct contrast to the scene of to-day, with steamers coming from all parts of the world and the great Empress of Britain, towering over them all, the view of the Lower Town beneath the cliff must have been much the same, for the houses huddled under the hill are as old as Quebec itself.

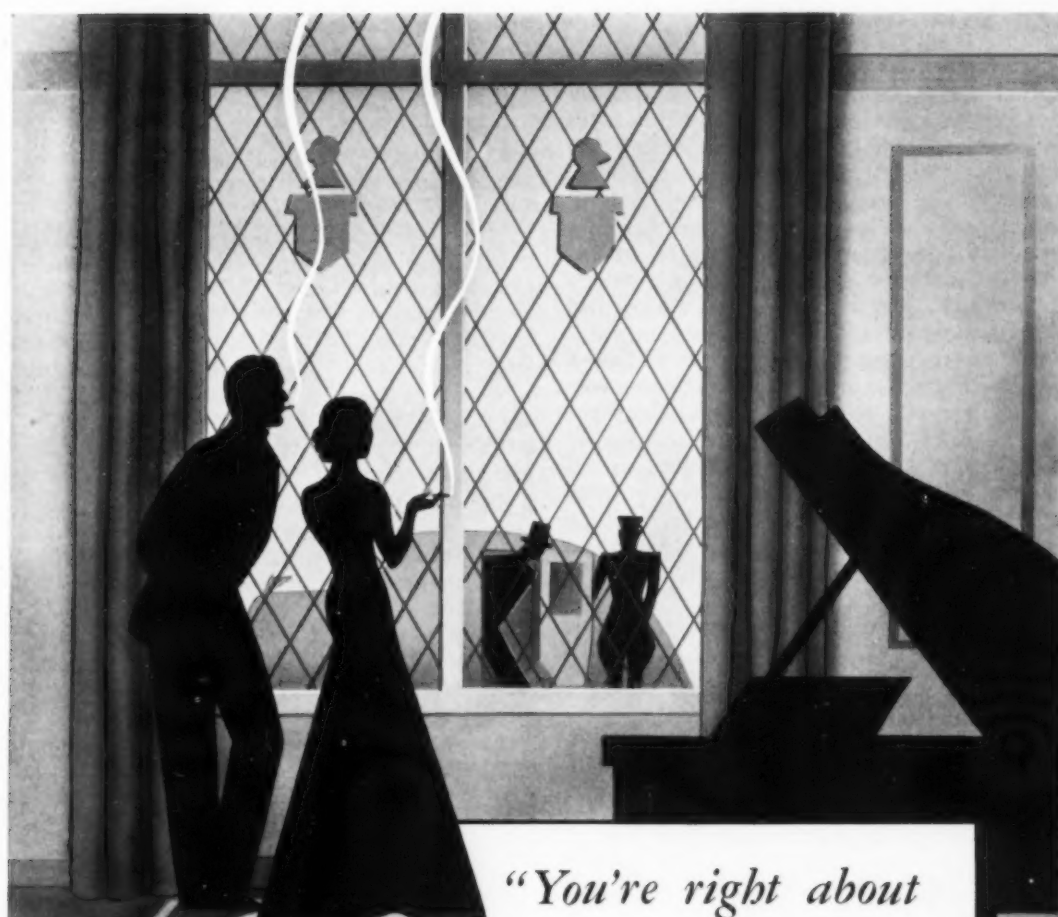
When the Honorable John Hale retired as Receiver-General he moved to a house on de Carrier Street, taking with him the beautiful pictures, furniture and china for which the house on St. Louis Street was famous. With them went the portrait of General Hale. At his death his eldest son, another John Hale, inherited the house and its contents, including the portrait.

Years passed and at Mr. John Hale's death his eldest son, Major Russell Hale, became the owner of his great-grandfather's portrait.

Major Hale was attached to the Royal Canadian Horse Artillery and was stationed in Kingston in 1914. He left at once with his battery. The portrait is now in England in the home of General Hale's great-grand-daughter, Miss Alicia Hale, who lives in a charming place, "Forest House," Coleman's Hatch, Sussex. It will in all probability cross the sea once more to be in the possession of the eldest great-great-grandson of General Hale, who lives not very far from Toronto.

There are many descendants of General Hale in Canada. In Quebec, a great-grand-daughter, Miss Minnie Hale, recently died at the age of ninety-six, leaving a sister and a brother who live at Sherbrooke. Other members of the family live in London, Ontario, and in Brantford. Other cousins live in Boston. The older generation will know this story which was told to us by a great-grand-daughter of General Hale, whose home is in London, Canada, but who has spent some time in England with her cousins, the ladies of "Forest House."





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clean and smooth
to the palate"*

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THE SMOKE OF THE BRITISH EMPIRE

EDITOR'S NOTE BOOK

Dr. Lawrence J. Burpee, who contributes the article "From Sea to Sea" to the current number, has been for a quarter of a century the Secretary for Canada of the International Joint Commission. He has also been president of the Royal Society of Canada, the Canadian Historical Association, and the Canadian Authors Association, and is a gold medallist of the French Academy and the Royal Society of Canada. He is a Fellow of several learned societies at home and abroad, and is the author of a score or more of books on Canadian history, geography and biography, as well as contributions to encyclopaedias, transactions and magazines. Mr. Burpee's name is well known to readers of the Canadian Geographical Journal as the skilful pilot who for six years following its inception, edited the Journal, and who as a director of the Society continues to contribute his experience towards the achievement of Society objectives.

Loris Shano Russell, who contributes the article "Alberta Rattlesnakes" in this issue, was born, Brooklyn, N.Y., April 21, 1904; son of Matilda Shano Russell and the late Milan Winslow Russell. He came to Alberta in 1908 and was educated in public and high schools of Calgary; B.Sc., University of Alberta, 1927. M.A., Princeton University, 1930. Fellow of the Royal Society of Canada, 1936. Student assistant on geological field parties, Research Council of Alberta, 1925 to 1927. Field geologist, Research Council of Alberta, 1928 and 1929. Assistant Palaeontologist, Geological Survey of Canada, 1930 to 1936; Assistant Geologist, 1936-37. Assis-

tant Professor of Palaeontology, University of Toronto, 1937.

A student of the geology of western Canada, especially the dinosaurs and other fossil vertebrates, he has written numerous papers on these subjects. Mr. Russell is also interested in the natural history and the historical development of the west.

Stewart MacNutt, M.A., who contributes in this issue "The Seven Mountains" is a graduate of Dalhousie-King's University, Halifax. In 1930, he was awarded an I.O.D.E. Overseas Scholarship. He took post graduate work at London University where he received the degree of Master of Arts in 1932. Mr. MacNutt has written for the Canadian Historical Review, the Dalhousie Review and Canadian Comment.

Miss A. M. Going, Kingston, Ontario, the author of "General John Hale—His Portrait," has written many articles on side-lights of Canadian history which have been published in England, Canada and the United States. A member of the Kingston Historical Society and for some years a member of the executive as honorary-secretary and vice-president, Miss Going's family has been in close touch with members of the Hale family for three generations.

AMONGST THE NEW BOOKS

A very practical book which should be of interest to public-spirited citizens is *Roadsides, The Front Yard of the Nation*, by J. M. BENNETT, (Boston, The Stratford Company, 1936, \$3.00). Based on eighteen years actual experience and observation in many parts of the United States and Canada, the book aims to provide all authentic information on the subject of roadside development available at the present time. The illustrations from photographs demonstrate its various phases, such as tree and shrub planting, timely and untimely signs, upkeep, the rôle of flowers etc. There is a good bibliography but no index.

In 1922 one of the finest accounts of Scott's last expedition was published in two richly illustrated volumes by a young zoologist of the Expedition, Apsley Cherry-Garrard. The book, long out of print, has recently been re-produced by the author in an inexpensive one-volume edition, *The Worst Journey in the World, Antarctic 1910-1913* (London: Chatto and Windus, 1937, 7/6). The splendid panoramas and colour-plates had to be omitted from this edition, but it contains ten illustrations from sketches by EDWARD WILSON, and others, and four maps by the author. Otherwise the record is unchanged, except for the author's 1937 preface, and what a glorious record it is!



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The first part describes the early events of the Expedition, the voyage out from England and the autumn Dépôt Journey. It ends with a complete account of the terrible Winter Journey to Cape Crozier of Wilson, Bowers and Cherry-Garrand. As the author writes in his preface: "Between the three of us we had a share in all the big journeys and bad times . . . I, we, have tried to show how good the whole thing was and how bad . . . It has been no mere gleaning of the Polar field. Not half the story has been told nor even all the most interesting documents. Among these I have had from Mrs. Bowers her son's letters home and from Lashley his diary of the Last Return party on the Polar Journey. Mrs. Wilson has given me her husband's diary of the Polar Journey. This is especially valuable because it is the only account in existence from 87° 32' to the Pole and after, with the exception of Scott's diary, already published. Lady Scott has given any records I wanted. Not one of my companions in the South has failed to help. They include Atkinson, Wright, Priestley, Simpson, Lillie and Debenham."

The author's own diary forms the groundwork of the book. By judicious selection of the material, monotony has been avoided and the narrative carries us on rapidly from one incident to another on the various journeys. His judgments and comments on methods and performances must have been of immense value to polar explorers in the years since the book first appeared, but to the present generation of readers it will appeal rather as a splendid story of adventure, of heroic deeds and noble comradeship told with vigour and not a little humour.

Wonders of the Sea: Shells (London, Batsford, 1937, 5/6), is a most attractive example of the Batsford series of books, *Art and Nature in Colour*. The beautiful colour plate of a *murex saxatilis* mounted on the soft black cover makes an immediate appeal even to those who have not experienced the delights of shell collecting. The book consists of fifteen plates in colour exquisitely painted from nature by PAUL ROBERT, in the Oceanographical museum at Monaco. Many of the plates depict a number of allied shell forms, so that forty-seven varieties are shown in all. Explanations of the plates indicating the habitat of each shell and special features of its structure are furnished by Arnold Masarey, who also wrote the

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delightful introductory text. As with others of the series such as *The Life of the Sea* and *The Beauty of Butterflies*, the general introduction is by Julian Huxley. He concludes a very illuminating discussion of the value of the aesthetic in life and the beauty and structural adaptation of shells with: "Whatever the biological meaning and mechanism of mollusc shells, their beauty is unique. I am sure this volume will help the layman to appreciate the loveliness and the variety of nature," and again: "The realization of the existence of creatures that have their being in innumerable alien ways from ours is a valuable corrective to self-centredness and an equally valuable promoter of that precious quality, disinterested wonder."

Letters in Canada 1936, edited by A. S. P. WOODHOUSE (Toronto: University Press, 1937, \$1.00). The appearance of this second annual survey of Canadian literature is of immense value and importance in our national life. It not only furnishes exhaustive classified lists of all publications in book or periodical form which have been issued during the year, but also offers a series of essays by acknowledged authorities, which criticize and appraise the works in their various fields. Poetry is dealt with by E. K. BROWN, Fiction by J. R. MACGILLIVRAY, Drama by W. S. MILNE, Canadian Social Studies by A. BRADY, Remaining material by the editor and French-Canadian Letters by FELIX WALTER. "The place of honour is given, as is proper, to the creative effort in literature, to the work in poetry, fiction and drama; but the survey

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endeavours to place the creative effort in its true setting by supplying a selected bibliography of works bearing on the literary and cultural background, historical and contemporary, and by giving some account of applied literature, of writings on education and religion, and the fine arts and of Canadian scholarship and criticism both in the humanities proper and in the social sciences."

Too much praise cannot be given to the thoroughness and scholarship which have gone to the making of this literary "survey". It should, and undoubtedly will, give a great impetus to the buying and reading of the works of Canadian authors and a wider appreciation of the scope of such work. The editor makes special acknowledgment to Miss Alison Ewart for her skilful compiling of the bibliographical material. The essays are delightful, abounding in admirable brief reviews and stimulating criticism. The section dealing with French-Canadian Letters as a whole, is a new feature of this year's survey, most capably and wittily handled by FELIX WALTER. The book should be in every library and in the home of everyone who wishes to keep in touch with the Canadian literary scene.

Yukon Yesterdays, by MAJOR NEVILLE A. D. ARMSTRONG (London: John Long, 1936, 18s.), can hardly be better described than by its sub-title which runs: Thirty years of adventure in the Klondike; personal memories of the famous Klondike gold rush, first hand accounts of lucky strikes, stories of Dawson in the wild nineties, exploring and big-game hunting in the unknown sub-Arctic. Major Armstrong was not only in the famous gold rush of '98, but was the purchaser of one of the most successful mines on Cheechako Hill. He appears to have known all the famous characters of those lurid days and recounts their histories and exploits with unflinching zest. He travelled widely in the Yukon, and explored the "blizzard-swept wilds" of the MacMillan river region where his name is perpetuated by a mountain and a landing, honours conferred on him by the Geographic Board of Canada. The book is admirably produced, has two end-paper maps and fifty-four illustrations.

FLORENCE E. FORSEY

A new departure in the Batsford series of books on England is *The Coloured Counties, a Short Survey of the English Landscape and its Antiquities*, by BRADLEY FORD (London, 1937, 8/6). Its 92 illustrations from Dufaycolor photographs are reproduced in colour photogravure. The text to which the illustrations form such a fitting accompaniment is by Mr. Charles Bradley Ford; an author who knows almost every corner of the land and earnestly pleads for the preservation of its unique loveliness. His introduction deals with the English landscape: character, variety, mountain, moorland, down, fen—Climate—Colour—Woodlands—Waters—Coast—Building Tradition—Present-day Spoliation—Influence of Roads—Traffic—The Farmer—Future Hopes.

After this constructive and interesting chapter Mr. Ford takes the reader on a delightful pilgrimage through the counties. We see in turn Northern England, Midland England, East Anglia, the Home Counties and the South East, and finally the West Country, though the author confesses to a preference for dividing the country according to the geological formations, which do indeed form the bases for the general structure and colouring, and influence so markedly the architecture and customs

of the people. The book is a marvel of compression yet loses nothing of charm and distinction. It is probably one of the earliest books using the Dufay-colour process for its illustrations and the beauty of these English landscape views gives promise of its wide adoption.

Cotswold Country, by H. J. MASSINGHAM, (London: B. T. Batsford, 1937, 7/6 net). Mr. Massingham is well known for his learned and delightful English regional studies. Before writing this book for the Face of Britain series he made a tour of the whole oolitic Limestone belt from Dorset to Lincolnshire. The Cotswolds comprise the widest and most typical area but the formation extends over ten counties. In comparison with the Chalk formation, which he described in *English Downland*, he found the limestone possessed an unparalleled richness in architecture—it is a treasure house not only of building, but also of local life, of folk-custom, of history, of landscape, and of structural and architectural contrasts with the scenery of adjacent strata. Mr. Massingham shows the underlying unity in diversity of all this beautiful region of England—its mellow charm, the loveliness and quaintness of its villages and churches and marvellous old tithe barns. The 133 photographic illustrations are a joy. Just as the author's delightful writing analyses the various local qualities which together go to make up the character of the districts—the Dorset limestone, the Avon Valley, the Cotswolds, Northampton, Rutland and many others—so these photographs illustrate and interpret them. The end-paper maps depict the North and Midlands, and the South of Limestone England, respectively. The book contains also some interesting drawings and a charming coloured reproduction from a painting by Gilbert Spencer, "A Cotswold Farm."

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The Canadian Geographical Journal will be sent to each member of the Society in good standing. Membership in the Society is open to anyone interested in geographical matters. The annual fee for membership is three dollars in Canada.

The Society has no political or other sectional associations, and is responsible only to its members. All money received is used in producing the Canadian Geographical Journal and in carrying on such other activities for the advancement of geographical knowledge as funds of the Society may permit.